

THE STATE OF TEXAS                   §

COUNTY OF TRAVIS                   §

**CONTRACT FOR ENGINEERING SERVICES**  
**Cost Plus Fixed Fee,**  
**Unit Cost, Lump Sum, or Specified Rate**  
**Indefinite Deliverable with Work Authorizations**

**THIS CONTRACT FOR ENGINEERING SERVICES** is made by and between the State of Texas acting by and through the Texas Department of Transportation, 125 E. 11th St., Austin, Texas 78701, hereinafter called "State," and Cobb, Fendley & Associates, Inc., having its principal business address at 13430 Northwest Freeway, Suite 1100, Houston, Texas 77040, hereinafter called "Engineer," for the purpose of contracting for engineering services.

**WITNESSETH**

**WHEREAS**, Government Code, Chapter 2254, Subchapter A, "Professional Services Procurement Act," provides for the procurement of engineering services; and

**WHEREAS**, 43 Texas Administrative Code §9.30 et seq. establishes the Texas Department of Transportation's policies and procedures for contracting for engineering services; and,

**WHEREAS**, the State desires to contract for engineering services generally described as Traffic Engineering Studies and Design, Access Management and Traffic Mobility Studies, Intelligent Transportation Systems (ITS) Analysis and Project Design; and,

**WHEREAS**, the State has selected the Engineer to provide the needed services and the Engineer has agreed to provide the services subject to the terms and conditions hereinafter set forth.

**NOW, THEREFORE**, the State and the Engineer, in consideration of the mutual covenants and agreements herein contained, do hereby mutually agree as follows.

**AGREEMENT**

**ARTICLE 1. SCOPE OF SERVICES.** The State and the Engineer will furnish items and perform those services for fulfillment of the contract as identified in Attachment B, Services to be Provided by the State and Attachment C, Services to be Provided by the Engineer. All services provided by the Engineer will conform to standard engineering practices and applicable rules and regulations of the Texas Engineering Practices Act and the rules of the Texas Board of Professional Engineers.

**ARTICLE 2. CONTRACT PERIOD.** This contract becomes effective when fully executed by all parties hereto and it shall terminate at the close of business on **July 31, 2020** unless the contract period is: (1) modified by written supplemental agreement prior to the date of termination as set forth in Attachment A, General Provisions, Article 6, Supplemental Agreements; (2) extended due to a work suspension as provided for in Attachment A, Article 3, Paragraph C; or (3) otherwise terminated in accordance with Attachment A, General Provisions, Article 15, Termination. Any work performed or cost incurred before or after the contract period shall be ineligible for reimbursement.

The maximum contract time is the time needed to complete all work authorizations that will be issued in the first two years of the contract. All work authorizations must be issued within the initial two-year period, starting from the contract execution date.

**ARTICLE 3. COMPENSATION.**

**A. Maximum Amount Payable.** The maximum amount payable under this contract without modification is shown in Attachment E, Fee Schedule. Payment under this contract beyond the end of the current fiscal biennium is subject to availability of appropriated funds. If funds are not appropriated, this contract shall be terminated immediately with no liability to either party.

**B. Basis of Payment.** The basis of payment is identified in Attachment E, Fee Schedule. Reimbursement of costs incurred under a work authorization shall be in accordance with Attachment E, Fee Schedule.

**C. Reimbursement of Eligible Costs.** To be eligible for reimbursement, the Engineer's costs must (1) be incurred in accordance with the terms of a valid work authorization; (2) be in accordance with Attachment E, Fee Schedule; and (3) comply with cost principles set forth at 48 CFR Part 31, Federal Acquisition Regulation (FAR 31). Satisfactory progress of work shall be maintained as a condition of payment.

**D. Engineer Payment of Subproviders.** No later than ten (10) days after receiving payment from the State, the Engineer shall pay all subproviders for work performed under a subcontract authorized hereunder. The State may withhold all payments that have or may become due if the Engineer fails to comply with the ten-day payment requirement. The State may also suspend the work under this contract or any work authorization until subproviders are paid. This requirement also applies to all lower tier subproviders, and this provision must be incorporated into all subcontracts.

#### **ARTICLE 4. PAYMENT REQUIREMENTS**

**A. Monthly Billing Statements.** The Engineer shall request reimbursement of costs incurred by submitting the original and one copy of an itemized billing statement in a form acceptable to the State. The Engineer is authorized to submit requests for reimbursement no more frequently than monthly and no later than ninety (90) days after costs are incurred.

**B. Billing Statement.** The billing statement shall show the work authorization number for each work authorization included in the billing, the total amount earned to the date of submission, and the amount due and payable as of the date of the current billing statement for each work authorization. The billing statement shall indicate if the work has been completed or if the billing is for partial completion of the work. The fixed fee will be paid in proportion to the percentage of work completed per work authorizations.

**C. Overhead Rates.** The Engineer shall use the provisional overhead rate indicated in Attachment E. If a periodic escalation of the provisional overhead rate is specified in Attachment E, the effective date of the revised provisional overhead rate must be included. For lump sum contracts, the overhead rate remains unchanged for the entire contract period.

**D. Thirty Day Payments.** Upon receipt of a billing statement that complies with all invoice requirements set forth in this Article, the State shall make a good faith effort to pay the amount which is due and payable within thirty (30) days.

**E. Withholding Payments.** The State reserves the right to withhold payment of the Engineer's billing statement in the event of any of the following: (1) If a dispute over the work or costs thereof is not resolved within a thirty day period; (2) pending verification of satisfactory work performed; (3) the Engineer becomes a delinquent obligor as set forth in Section 231.006 of the Family Code; (4) required reports are not received; or (5) the State Comptroller of Public Accounts will not issue a warrant to the Engineer. In the event that payment is withheld, the State shall notify the Engineer and give a remedy that would allow the State to release the payment.

#### **F. Required Reports.**

(1) As required in Attachment H, Disadvantaged Business Enterprise or Historically Underutilized Business Program Requirements, the Engineer shall submit Progress Assessment Reports to report actual payments made to Disadvantaged Business Enterprises or Historically Underutilized Businesses. One copy shall be submitted with each billing statement and one copy shall be submitted to the address included in Attachment H, Disadvantaged Business Enterprise or Historically Underutilized Business Program Requirements.

(2) Prior to contract closeout, the Engineer shall submit a Final Report (Exhibit H-4) to the address set forth in Attachment H.

(3) The Engineer shall submit a separate report with each billing statement showing the percent completion of the work accomplished during the billing period and the percent completion to date, and any additional written report requested by the State to document the progress of the work.

**G. Subproviders and Suppliers List.** Pursuant to requirements of 43 Texas Administrative Code §9.50 et seq., the Engineer must provide the State a list (Exhibit H-5/DBE or Exhibit H-6/HUB) of all Subproviders and suppliers

that submitted quotes or proposals for subcontracts. This list shall include subproviders and suppliers names, addresses, telephone numbers, and type of work desired.

**H. Debt to the State.** If the State Comptroller of Public Accounts is prohibited from issuing a warrant or initiating an electronic funds transfer to the Engineer because of a debt owed to the State, the State shall apply all payment due the Engineer to the debt or delinquent tax until the debt or delinquent tax is paid in full.

**I. Audit.** The state auditor may conduct an audit or investigation of any entity receiving funds from the state directly under the contract or indirectly through a subcontract under the contract. Acceptance of funds directly under the contract or indirectly through a subcontract under this contract acts as acceptance of the authority of the state auditor, under the direction of the legislative audit committee, to conduct an audit or investigation in connection with those funds. An entity that is the subject of an audit or investigation must provide the state auditor with access to any information the state auditor considers relevant to the investigation or audit.

**ARTICLE 5. WORK AUTHORIZATIONS.** The State will issue work authorizations using the form included in Attachment D (Work Authorizations and Supplemental Work Authorizations) to authorize all work under this contract. The Engineer must sign and return a work authorization within seven (7) working days after receipt. Refusal to accept a work authorization may be grounds for termination of the contract. The State shall not be responsible for actions by the Engineer or any costs incurred by the Engineer relating to work not directly associated with or prior to the execution of a work authorization. Terms and conditions governing the use of work authorizations are set forth in Attachment A, General Provisions, Article 1.

**ARTICLE 6. SIGNATORY WARRANTY.** The undersigned signatory for the Engineer hereby represents and warrants that he or she is an officer of the organization for which he or she has executed this contract and that he or she has full and complete authority to enter into this contract on behalf of the firm. These representations and warranties are made for the purpose of inducing the State to enter into this contract.

**ARTICLE 7.** All notices to either party by the other required under this agreement shall be delivered personally or sent by certified or U.S. mail, postage prepaid, addressed to such party at the following addresses:

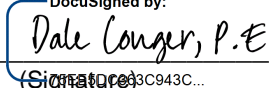
Engineer:	State:
Cobb, Fendley & Associates, Inc. 1920 Country Place Parkway, Suite 310 Pearland, Texas 77584	Director, Professional Engineering Procurement Services Texas Department of Transportation 125 E. 11 <sup>th</sup> Street Austin, Texas 78701

All notices shall be deemed given on the date so delivered or so deposited in the mail, unless otherwise provided herein. Either party may change the above address by sending written notice of the change to the other party. Either party may request in writing that such notices shall be delivered personally or by certified U.S. mail and such request shall be honored and carried out by the other party.

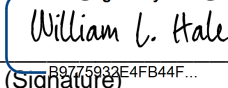
**ARTICLE 8. INCORPORATION OF PROVISIONS.** Attachments A through H are attached hereto and incorporated into this contract as if fully set forth herein.

**IN WITNESS WHEREOF**, the **State** and the **Engineer** have executed this contract in duplicate.

**THE ENGINEER**

DocuSigned by:  
  
(Signature) 33C943C...  
Dale Conger, P.E.  
(Printed Name)  
President  
(Title)  
7/21/2016  
(Date)

**THE STATE OF TEXAS**

DocuSigned by:  
  
(Signature) B9775932E4FB44F...  
William L. Hale, P.E.  
(Printed Name)  
Chief Engineer  
(Title)  
7/28/2016  
(Date)

**Attachments to Contract for Engineering Services  
 Incorporated into the Contract by Reference**

<b>Attachments</b>	<b>Title</b>
A	General Provisions
B	Services to Be Provided by the State
C	Services to Be Provided by the Engineer
D	Work Authorization and Supplemental Work Authorization
E	Fee Schedule
F	Not Applicable
G	Computer Graphics Files for Document and Information Exchange
H-FG	Disadvantaged Business Enterprise (DBE) for Federal Funded Professional or Technical Services Contracts – See Attachment H Instructions – Not Applicable
H – FN	Disadvantaged Business Enterprise (DBE) for Race-Neutral Professional or Technical Services Contracts – See Attachment H Instructions – Not Applicable
H – SG	Historically Underutilized Business (HUB) Requirements for State Funded Professional or Technical Services Contracts – State of Texas HUB. Subcontracting plan required – See Attachment H Instructions
H – SN	Historically Underutilized Business (HUB) Requirements for State Funded Professional or Technical Services Contracts – No State of Texas HUB – Not Applicable
<b>Exhibits</b>	<b>Title</b>
H – 1	Subprovider Monitoring System Commitment Worksheet
H – 2	Subprovider Monitoring System Commitment Agreement
H – 3	Monthly Progress Assessment Report
H - 4	Subprovider Monitoring System Final Report
H - 5	Federal Subproviders and Supplier Information – Not Applicable
H - 6	HUB Subcontracting Plan (HSP) Prime Contractor Progress Assessment Report

**ATTACHMENT A**  
**GENERAL PROVISIONS**  
**INDEX TO PROVISIONS**

<b>Article</b>	<b>Title</b>
1	Work Authorizations
2	Progress
3	Suspension of Work
4	Additional Work
5	Changes in Work
6	Supplemental Agreements
7	Ownership of Data
8	Public Information
9	Personnel, Equipment and Material
10	License for TxDOT Logo Use
11	Subcontracting
12	Inspection of Work
13	Submission of Reports
14	Violation of Contract Terms
15	Termination
16	Compliance with Laws
17	Indemnification
18	Engineer's Responsibility
19	Non-collusion
20	Insurance
21	Gratuities
22	DBE/HUB Requirements
23	Maintenance, Retention and Audit of Records
24	Nepotism Disclosure
25	Civil Rights Compliance
26	Patent Rights
27	Computer Graphics Files
28	Child Support Certification
29	Disputes
30	Successors and Assigns
31	Severability
32	Prior Contracts Superseded
33	Conflict of Interest
34	Office of Management and Budget (OMB) Audit Requirements
35	Debarment Certifications
36	E-Verify Certification
37	Restrictions on Employment of Former State Officer or Employee
38	Non-Discrimination Provisions

## ATTACHMENT A

### GENERAL PROVISIONS

#### ARTICLE 1. WORK AUTHORIZATIONS

**A. Use.** The Engineer shall not begin any work until the State and the Engineer have signed a work authorization. Costs incurred by the Engineer before a work authorization is fully executed or after the completion date specified in the work authorization are not eligible for reimbursement. All work must be completed on or before the completion date specified in the work authorization, and no work authorization completion date shall extend beyond the contract period set forth in Article 2 of the contract (Contract Period).

The maximum contract time is the time needed to complete all work authorizations that will be issued in the first two years of the contract. All work authorizations must be issued within the initial two-year period, starting from the contract execution date.

**B. Contents.** Each work authorization will specify (1) the types of services to be performed; (2) a period of performance with a beginning and ending date; (3) a full description of the work to be performed; (4) a work schedule with milestones; (5) a cost not to exceed amount, (6) the basis of payment whether cost plus fixed fee, unit cost, lump sum, or specified rate; and (7) a work authorization budget calculated using fees set forth in Attachment E, Fee Schedule. The Engineer is not to include additional contract terms and conditions in the work authorization. In the event of any conflicting terms and conditions between the work authorization and the contract, the terms and conditions of the contract shall prevail and govern the work and costs incurred.

**C. Work Authorization Budget.** A work authorization budget shall set forth in detail (1) the computation of the estimated cost of the work as described in the work authorization, (2) the estimated time (hours/days) required to complete the work at the hourly rates established in Attachment E, Fee Schedule; (3) a work plan that includes a list of the work to be performed, (4) a stated maximum number of calendar days to complete the work, and (5) a cost-not-to-exceed-amount or unit or lump sum cost and the total cost or price of the work authorization. The State will not pay items of cost that are not included in or rates that exceed those approved in Attachment E.

**D. No Guaranteed Work.** Work authorizations are issued at the discretion of the State. While it is the State's intent to issue work authorizations hereunder, the Engineer shall have no cause of action conditioned upon the lack or number of work authorizations issued.

**E. Incorporation into Contract.** Each work authorization shall be signed by both parties and become a part of the contract. No work authorization will waive the State's or the Engineer's responsibilities and obligations established in this contract. The Engineer shall promptly notify the State of any event that will affect completion of the work authorization.

**F. Supplemental Work Authorizations.** Before additional work may be performed or additional costs incurred, a change in a work authorization shall be enacted by a written supplemental work authorization in the form identified and attached hereto as Attachment D. Both parties must execute a supplemental work authorization within the period of performance specified in the work authorization. The State shall not be responsible for actions by the Engineer or any costs incurred by the Engineer relating to additional work not directly associated with the performance or prior to the execution of the work authorization. The Engineer shall allow adequate time for review and approval of the supplemental work authorization by the State prior to expiration of the work authorization. Any supplemental work authorization must be executed by both parties within the time period established in Article 2 of the contract, (Contract Period). Under no circumstances will a work authorization be allowed to extend beyond the contract's expiration date or will the total amount of funds exceed the maximum amount payable set forth in Article 3A of the contract (Compensation).

**F-1. More Time Needed.** If the Engineer determines or reasonably anticipates that the work authorized in a work authorization cannot be completed before the specified completion date, the Engineer shall promptly notify the State. The State may, at its sole discretion, extend the work authorization period by execution of supplemental authorization, using the form attached hereto as Attachment D.

**F-2. Changes in Scope.** Changes that would modify the scope of the work authorized in a work authorization must be enacted by a written supplemental work authorization. The Engineer must allow adequate time for the State to review and approve any request for a time extension prior to expiration of the work authorization. If the change in scope affects the amount payable under the work authorization, the Engineer shall prepare a revised work authorization budget for the State's approval.

**G. New Work Authorization.** If the Engineer does not complete the services authorized in a work authorization before the specified completion date and has not requested a supplemental work authorization, the work authorization shall terminate on the completion date. At the sole discretion of the State, it may issue a new work authorization to the Engineer for the incomplete work using the unexpended balance of the preceding work authorization for the project. If approved by the State, the Engineer may calculate any additional cost for the incomplete work using the rates set forth in the preceding work authorization and in accordance with Attachment E, Fee Schedule.

**H. Emergency Work Authorizations.** The State, at its sole discretion, may accept the Engineer's signature on a faxed copy of the work authorization as satisfying the requirements for executing the work authorization, provided that the signed original is received by the State within five business days from the date on the faxed copy.

**I. Proposal Work Authorizations.** The State may issue a proposal work authorization under which the Engineer will submit a proposal for additional work. The proposal must be for additional work that is within the defined scope of work under this contract. The amount to be paid for a proposal work authorization will be a lump sum for each proposal. The lump sum payment will be no less than two percent (2%) and no more than four percent (4%) of the State's estimate of the cost of the additional work. The Engineer may elect without penalty not to submit a proposal in response to a proposal work authorization. Any proposal submitted in response to a proposal work authorization will be the sole property of the State. The State may, at its option, issue similar or identical proposal work authorizations under other contracts, and the proposals submitted in response to the various proposal work authorizations may be compared by the State for the purpose of determining the contract under which the work will be awarded. The determination of the contract under which the work will be awarded will be based on the design characteristics of the proposal and the Engineer's qualifications and will not consider the Engineer's rates.

**J. Deliverables.** Upon satisfactory completion of the work authorization, the Engineer shall submit the deliverables as specified in the executed work authorization to the State for review and acceptance.

## **ARTICLE 2. PROGRESS**

**A. Progress meetings.** The Engineer shall from time to time during the progress of the work confer with the State. The Engineer shall prepare and present such information as may be pertinent and necessary or as may be requested by the State in order to evaluate features of the work.

**B. Conferences.** At the request of the State or the Engineer, conferences shall be provided at the Engineer's office, the office of the State, or at other locations designated by the State. These conferences shall also include evaluation of the Engineer's services and work when requested by the State.

**C. Inspections.** If federal funds are used to reimburse costs incurred under this contract, the work and all reimbursements will be subject to periodic review by the U. S. Department of Transportation.

**D. Reports.** The Engineer shall promptly advise the State in writing of events that have a significant impact upon the progress of a work authorization, including:

1. problems, delays, adverse conditions that will materially affect the ability to meet the time schedules and goals, or preclude the attainment of project work units by established time periods; this disclosure will be accompanied by statement of the action taken or contemplated, and any State or federal assistance needed to resolve the situation; and
2. favorable developments or events which enable meeting the work schedule goals sooner than anticipated.

**E. Corrective Action.** Should the State determine that the progress of work does not satisfy the milestone schedule set forth in a work authorization, the State shall review the work schedule with the Engineer to determine the nature of corrective action needed.

### **ARTICLE 3. SUSPENSION OF WORK AUTHORIZATION**

**A. Notice.** Should the State desire to suspend a work authorization but not terminate the contract, the State may verbally notify the Engineer followed by written confirmation, giving (30) thirty days notice. Both parties may waive the thirty-day notice in writing.

**B. Reinstatement.** A work authorization may be reinstated and resumed in full force and effect within sixty (60) business days of receipt of written notice from the State to resume the work. Both parties may waive the sixty-day notice in writing.

**C. Contract Period Not Affected.** If the State suspends a work authorization, the contract period as determined in Article 2 of the contract (Contract Period) is not affected and the contract and the work authorization will terminate on the date specified unless the contract or work authorization is amended to authorize additional time.

**D. Limitation of Liability.** The State shall have no liability for work performed or costs incurred prior to the date authorized by the State to begin work, during periods when work is suspended, or after the completion date of the contract or work authorization.

### **ARTICLE 4. ADDITIONAL WORK**

**A. Notice.** If the Engineer is of the opinion that any assigned work is beyond the scope of this contract and constitutes additional work, it shall promptly notify the State in writing, presenting the facts of the work authorization and showing how the work authorization constitutes additional work.

**B. Supplemental Agreement.** If the State finds that the work does constitute additional work, the State shall so advise the Engineer and a written supplemental agreement will be executed as provided in General Provisions, Article 6, Supplemental Agreements.

**C. Limitation of Liability.** The State shall not be responsible for actions by the Engineer or any costs incurred by the Engineer relating to additional work not directly associated with or prior to the execution of a supplemental agreement.

### **ARTICLE 5. CHANGES IN WORK**

**A. Work Previously Submitted as Satisfactory.** If the Engineer has submitted work in accordance with the terms of this contract but the State requests changes to the completed work or parts thereof which involve changes to the original scope of services or character of work under the contract, the Engineer shall make such revisions as requested and as directed by the State. This will be considered as additional work and paid for as specified under Article 4, Additional Work.

**B. Work Does Not Comply with Contract.** If the Engineer submits work that does not comply with the terms of this contract, the State shall instruct the Engineer to make such revision as is necessary to bring the work into compliance with the contract. No additional compensation shall be paid for this work.

**C. Errors/Omissions.** The Engineer shall make revisions to the work authorized in this contract which are necessary to correct errors or omissions appearing therein, when required to do so by the State. No additional compensation shall be paid for this work.

### **ARTICLE 6. SUPPLEMENTAL AGREEMENTS**

**A. Need.** The terms of this contract may be modified if the State determines that there has been a significant increase or decrease in the duration, scope, cost, complexity or character of the services to be performed. A supplemental agreement will be executed to authorize such significant increases or decreases. Significant is defined to mean a cost increase of any amount and a cost decrease of twenty percent (20%) or more of the original estimated project cost.



**B. Compensation.** Additional compensation, if appropriate, shall be calculated as set forth in Article 3 of the contract (Compensation). Significant changes affecting the cost or maximum amount payable shall be defined to include but not be limited to new work not previously authorized or previously authorized services that will not be performed. The parties may reevaluate and renegotiate costs at this time.

**C. When to Execute.** Both parties must execute a supplemental agreement within the contract period specified in Article 2 of the contract (Contract Period).

#### **ARTICLE 7. OWNERSHIP OF DATA**

**A. Work for Hire.** All services provided under this contract are considered work for hire and as such all data, basic sketches, charts, calculations, plans, specifications, and other documents created or collected under the terms of this contract are the property of the State.

**B. Disposition of Documents.** All documents prepared by the Engineer and all documents furnished to the Engineer by the State shall be delivered to the State upon request by the State. The Engineer, at its own expense, may retain copies of such documents or any other data which it has furnished the State under this contract, but further use of the data is subject to permission by the State.

**C. Release of Design Plan.** The Engineer (1) will not release any roadway design plan created or collected under this contract except to its subproviders as necessary to complete the contract; (2) shall include a provision in all subcontracts which acknowledges the State's ownership of the design plan and prohibits its use for any use other than the project identified in this contract; and (3) is responsible for any improper use of the design plan by its employees, officers, or subproviders, including costs, damages, or other liability resulting from improper use. Neither the Engineer nor any subprovider may charge a fee for the portion of the design plan created by the State.

#### **ARTICLE 8. PUBLIC INFORMATION AND CONFIDENTIALITY**

**A. Public Information.** The State will comply with Government Code, Chapter 552, the Public Information Act, and 43 Texas Administrative Code §3.10 et seq. in the release of information produced under this contract.

**B. Confidentiality.** The Engineer shall not disclose information obtained from the State under this contract without the express written consent of the State.

**C. Access to Information.** The Engineer is required to make any information created or exchanged with the state pursuant to this contract, and not otherwise excepted from disclosure under the Texas Public Information Act, available in a format that is accessible by the public at no additional charge to the state.

#### **ARTICLE 9. PERSONNEL, EQUIPMENT AND MATERIAL**

**A. Engineer Resources.** The Engineer shall furnish and maintain quarters for the performance of all services, in addition to providing adequate and sufficient personnel and equipment to perform the services required under the contract. The Engineer certifies that it presently has adequate qualified personnel in its employment for performance of the services required under this contract, or it will be able to obtain such personnel from sources other than the State.

**B. Removal of Contractor Employee.** All employees of the Engineer assigned to this contract shall have such knowledge and experience as will enable them to perform the duties assigned to them. The State may instruct the Engineer to remove any employee from association with work authorized in this contract if, in the sole opinion of the State, the work of that employee does not comply with the terms of this contract or if the conduct of that employee becomes detrimental to the work.

**C. Replacement of Key Personnel.** The Engineer must notify the State in writing as soon as possible, but no later than three business days after a project manager or other key personnel is removed from association with this contract, giving the reason for removal.

**D. State Approval of Replacement Personnel.** The Engineer may not replace the project manager or key personnel without prior consent of the State. The State must be satisfied that the new project manager or

other key personnel is qualified to provide the authorized services. If the State determines that the new project manager or key personnel is not acceptable, the Engineer may not use that person in that capacity and shall replace him or her with one satisfactory to the State within forty-five (45) days.

**E. Ownership of Acquired Property.** Except to the extent that a specific provision of this contract states to the contrary, the State shall own all intellectual property acquired or developed under this contract and all equipment purchased by the Engineer or its subcontractors under this contract. All intellectual property and equipment owned by the State shall be delivered to the State when the contract terminates, or when it is no longer needed for work performed under this contract, whichever occurs first.

#### **ARTICLE 10. LICENSE FOR TxDOT LOGO USE**

**A. Grant of License; Limitations.** The Engineer is granted a limited revocable non-exclusive license to use the registered TxDOT trademark logo (TxDOT Flying "T") on any deliverables prepared under this contract that are the property of the State. The Engineer may not make any use of the registered TxDOT trademark logo on any other materials or documents unless it first submits that request in writing to the State and receives approval for the proposed use. The Engineer agrees that it shall not alter, modify, dilute, or otherwise misuse the registered TxDOT trademark logo or bring it into disrepute.

**B. Notice of Registration Required:** The Engineer's use of the Flying 'T' under this article shall be followed by the capital letter R enclosed within a circle (®) that gives notice that the Flying 'T' is registered in the United States Patent and Trademark Office (USPTO).

**C. No Assignment or Sublicense.** The Engineer may not assign or sublicense the rights granted by this article without the prior written consent of the State.

**D. Term of License.** The license granted to the Engineer by this article shall terminate at the end of the term specified in Article 2 of this contract.

#### **ARTICLE 11. SUBCONTRACTING**

**A. Prior Approval.** The Engineer shall not assign, subcontract or transfer any portion of professional services related to the work under this contract without prior written approval from the State.

**B. DBE/HUB Compliance.** The Engineer's subcontracting program shall comply with the requirements of Attachment H of the contract (DBE/HUB Requirements).

**C. Required Provisions.** All subcontracts for professional services shall include the provisions included in Attachment A, General Provisions, and any provisions required by law. The Engineer is authorized to pay subproviders in accordance with the terms of the subcontract, and the basis of payment may differ from the basis of payment by the State to the Engineer.

**D. Prior Review.** Subcontracts for professional services in excess of \$25,000 may be reviewed by the State prior to performance of work thereunder.

**E. Engineer Responsibilities.** No subcontract relieves the Engineer of any responsibilities under this contract.

#### **ARTICLE 12. INSPECTION OF WORK**

**A. Review Rights.** The State and the U.S. Department of Transportation, when federal funds are involved, and any of their authorized representatives shall have the right at all reasonable times to review or otherwise evaluate the work performed hereunder and the premises in which it is being performed.

**B. Reasonable Access.** If any review or evaluation is made on the premises of the Engineer or a subprovider, the Engineer shall provide and require its subproviders to provide all reasonable facilities and assistance for the safety and convenience of the state or federal representatives in the performance of their duties.

### **ARTICLE 13. SUBMISSION OF REPORTS**

All applicable study reports shall be submitted in preliminary form for approval by the State before a final report is issued. The State's comments on the Engineer's preliminary report must be addressed in the final report.

### **ARTICLE 14. VIOLATION OF CONTRACT TERMS**

**A. Increased Costs.** Violation of contract terms, breach of contract, or default by the Engineer shall be grounds for termination of the contract, and any increased or additional cost incurred by the State arising from the Engineer's default, breach of contract or violation of contract terms shall be paid by the Engineer.

**B. Remedies.** This agreement shall not be considered as specifying the exclusive remedy for any default, but all remedies existing at law and in equity may be availed of by either party and shall be cumulative.

### **ARTICLE 15. TERMINATION**

**A. Causes.** The contract may be terminated before the stated completion date by any of the following conditions.

1. By mutual agreement and consent, in writing from both parties.
2. By the State by notice in writing to the Engineer as a consequence of failure by the Engineer to perform the services set forth herein in a satisfactory manner.
3. By either party, upon the failure of the other party to fulfill its obligations as set forth herein.
4. By the State for reasons of its own, not subject to the mutual consent of the Engineer, by giving thirty business days notice of termination in writing to the Engineer.
5. By the State, if the Engineer violates the provisions of Attachment A, General Provisions Article 21, Gratuities, or Attachment H, Disadvantaged Business Enterprise/Historically Underutilized Business Requirements.
6. By satisfactory completion of all services and obligations described herein.

**B. Measurement.** Should the State terminate this contract as herein provided, no fees other than fees due and payable at the time of termination shall thereafter be paid to the Engineer. In determining the value of the work performed by the Engineer prior to termination, the State shall be the sole judge. Compensation for work at termination will be based on a percentage of the work completed at that time. Should the State terminate this contract under paragraph (4) or (5) above, the Engineer shall not incur costs during the thirty-day notice period in excess of the amount incurred during the preceding thirty days.

**C. Value of Completed Work.** If the Engineer defaults in the performance of this contract or if the State terminates this contract for fault on the part of the Engineer, the State will give consideration to the following when calculating the value of the completed work: (1) the actual costs incurred (not to exceed the rates set forth in Attachment E, Fee Schedule) by the Engineer in performing the work to the date of default; (2) the amount of work required which was satisfactorily completed to date of default; (3) the value of the work which is usable to the State; (4) the cost to the State of employing another firm to complete the required work; (5) the time required to employ another firm to complete the work; and (6) other factors which affect the value to the State of the work performed.

**D. Calculation of Payments.** The State shall use the fee schedule set forth in Attachment E to the contract (Fee Schedule) in determining the value of the work performed up to the time of termination. In the case of partially completed engineering services, eligible costs will be calculated as set forth in Attachment E, Fee Schedule. The sum of the provisional overhead percentage rate for payroll additives and for general and administrative overhead costs during the years in which work was performed shall be used to calculate partial payments. Any portion of the fixed fee not previously paid in the partial payments shall not be included in the final payment.

**E. Excusable Delays.** Except with respect to defaults of subproviders, the Engineer shall not be in default by reason of any failure in performance of this contract in accordance with its terms (including any failure to progress in the performance of the work) if such failure arises out of causes beyond the control and without the default or negligence of the Engineer. Such causes may include, but are not restricted to, acts of God or the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather.

**F. Surviving Requirements.** The termination of this contract and payment of an amount in settlement as prescribed above shall extinguish the rights, duties, and obligations of the State and the Engineer under this contract, except for those provisions that establish responsibilities that extend beyond the contract period.

**G. Payment of Additional Costs.** If termination of this contract is due to the failure of the Engineer to fulfill its contract obligations, the State may take over the project and prosecute the work to completion, and the Engineer shall be liable to the State for any additional cost to the State.

#### **ARTICLE 16. COMPLIANCE WITH LAWS**

The Engineer shall comply with all applicable federal, state and local laws, statutes, codes, ordinances, rules and regulations, and the orders and decrees of any court, or administrative bodies or tribunals in any manner affecting the performance of this contract, including, without limitation, worker's compensation laws, minimum and maximum salary and wage statutes and regulations, nondiscrimination, and licensing laws and regulations. When required, the Engineer shall furnish the State with satisfactory proof of its compliance therewith.

#### **ARTICLE 17. INDEMNIFICATION**

**A. Errors, Omissions, Negligent Acts.** The Engineer shall save harmless the State and its officers and employees from all claims and liability due to activities of itself, its agents, or employees, performed under this contract and which are caused by or result from error, omission, or negligent act of the Engineer or of any person employed by the Engineer.

**B. Attorney Fees.** The Engineer shall also save harmless the State from any and all expense, including, but not limited to, attorney fees which may be incurred by the State in litigation or otherwise resisting said claim or liabilities which may be imposed on the State as a result of such activities by the Engineer, its agents, or employees.

#### **ARTICLE 18. ENGINEER'S RESPONSIBILITY**

**A. Accuracy.** The Engineer shall be responsible for the accuracy of work and shall promptly make necessary revisions or corrections resulting from its errors, omissions, or negligent acts without compensation.

**B. Errors and Omissions.** The Engineer's Responsibility for all questions arising from design errors or omissions will be determined by the State. All decisions shall be in accordance with the State's "Consultant Errors & Omissions Correction and Collection Procedures" and Texas Government Code §2252.905. The Engineer will not be relieved of the responsibility for subsequent correction of any such errors or omissions or for clarification of any ambiguities until after the construction phase of the project has been completed.

**C. Seal.** The responsible Engineer shall sign, seal and date all appropriate engineering submissions to the State in accordance with the Texas Engineering Practice Act and the rules of the Texas Board of Professional Engineers.

**D. Resealing of Documents.** Once the work has been sealed and accepted by the State, the State, as the owner, will notify the party to this contract, in writing, of the possibility that a State engineer, as a second engineer, may find it necessary to alter, complete, correct, revise or add to the work. If necessary, the second engineer will affix his seal to any work altered, completed, corrected, revised or added. The second engineer will then become responsible for any alterations, additions or deletions to the original design including any effect or impacts of those changes on the original engineer's design.

#### **ARTICLE 19. NONCOLLUSION**

**A. Warranty.** The Engineer warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for the Engineer, to solicit or secure this contract and that it has not paid or agreed to pay any company or engineer any fee, commission, percentage, brokerage fee, gifts, or any other consideration, contingent upon or resulting from the award or making of this contract.

**B. Liability.** For breach or violation of this warranty, the State shall have the right to annul this contract without liability or, in its discretion, to deduct from the contract price or compensation, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

## **ARTICLE 20. INSURANCE**

The Engineer certifies that it has insurance on file with Contract Services of the Texas Department of Transportation in the amount specified on Texas Department of Transportation Form 1560-CS Certificate of Insurance, as required by the State. No other proof of insurance is acceptable to the State. The Engineer certifies that it will keep current insurance on file with that office for the duration of the contract period. If insurance lapses during the contract period, the Engineer must stop work until a new certificate of insurance is provided.

## **ARTICLE 21. GRATUITIES**

**A. Employees Not to Benefit.** Texas Transportation Commission policy mandates that employees of the Texas Department of Transportation shall not accept any benefit, gift or favor from any person doing business with or who reasonably speaking may do business with the State under this contract. The only exceptions allowed are ordinary business lunches and items that have received the advance written approval of the Executive Director of the Texas Department of Transportation.

**B. Liability.** Any person doing business with or who reasonably speaking may do business with the State under this contract may not make any offer of benefits, gifts or favors to department employees, except as mentioned above. Failure on the part of the Engineer to adhere to this policy may result in the termination of this contract.

## **ARTICLE 22. DISADVANTAGED BUSINESS ENTERPRISE OR HISTORICALLY UNDERUTILIZED BUSINESS REQUIREMENTS**

The Engineer agrees to comply with the requirements set forth in Attachment H, Disadvantaged Business Enterprise or Historically Underutilized Business Subcontracting Plan Requirements with an assigned goal or a zero goal, as determined by the State.

## **ARTICLE 23. MAINTENANCE, RETENTION AND AUDIT OF RECORDS**

**A. Retention Period.** The Engineer shall maintain all books, documents, papers, accounting records and other evidence pertaining to costs incurred and services provided (hereinafter called the Records). The Engineer shall make the records available at its office during the contract period and for seven (7) years from the date of final payment under this contract, until completion of all audits, or until pending litigation has been completely and fully resolved, whichever occurs last.

**B. Availability.** The State or any of its duly authorized representatives, the Federal Highway Administration, the United States Department of Transportation, Office of Inspector General, and the Comptroller General shall have access to the Engineer's Records which are directly pertinent to this contract for the purpose of making audits, examinations, excerpts and transcriptions.

## **ARTICLE 24. NEPOTISM DISCLOSURE**

**A.** In this section the term "relative" means:

- (1) a person's great grandparent, grandparent, parent, aunt or uncle, sibling, niece or nephew, spouse, child, grandchild, or great grandchild, or
- (2) the grandparent, parent, sibling, child, or grandchild of the person's spouse.

**B.** A notification required by this section shall be submitted in writing to the person designated to receive official notices under this contract and by first-class mail addressed to Contract Services, Texas Department of Transportation, 125 East 11th Street, Austin Texas 78701. The notice shall specify the Engineer's firm name, the name of the person who submitted the notification, the contract number, the district, division, or office of TxDOT that is principally responsible for the contract, the name of the relevant Engineer employee, the expected role of the Engineer employee on the project, the name of the TxDOT employee who is a relative of the Engineer employee, the title of the TxDOT employee, the work location of the TxDOT employee, and the nature of the relationship.

**C.** By executing this contract, the Engineer is certifying that the Engineer does not have any knowledge that any of its employees or of any employees of a subcontractor who are expected to work under this contract

have a relative that is employed by TxDOT unless the Engineer has notified TxDOT of each instance as required by subsection (b).

**D.** If the Engineer learns at any time that any of its employees or that any of the employees of a subcontractor who are performing work under this contract have a relative who is employed by TxDOT, the Engineer shall notify TxDOT under subsection (b) of each instance within thirty days of obtaining that knowledge.

**E.** If the Engineer violates this section, TxDOT may terminate the contract immediately for cause, may impose any sanction permitted by law, and may pursue any other remedy permitted by law.

## **ARTICLE 25. CIVIL RIGHTS COMPLIANCE**

**A. Compliance with Regulations:** The Engineer will comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, the Federal Highway Administration, as they may be amended from time to time.

**B. Nondiscrimination:** The Engineer, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, sex, or national origin in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The Engineer will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 45 CFR Part 21.

**C. Solicitations for Subcontracts, Including Procurement of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the Engineer for work to be performed under a subcontract, including procurement of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Engineer of the Engineer's obligations under this contract and the Acts and Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

**D. Information and Reports:** The Engineer shall provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information, and facilities as may be determined by the State or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations or directives. Where any information required of the Engineer is in the exclusive possession of another who fails or refuses to furnish this information, the Engineer will so certify to the State or the Federal Highway Administration, as appropriate, and shall set forth what efforts it has made to obtain the information.

**E. Sanctions for Noncompliance:** In the event of the Engineer's noncompliance with the Nondiscrimination provisions of this contract, the State will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

- a) withholding of payments to the Engineer under the contract until the Engineer complies and/or
- b) cancellation, termination, or suspension of the contract, in whole or in part.

**F. Incorporation of Provisions:** The Engineer will include the provisions of paragraphs (A) through (E) in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The Engineer will take such action with respect to any subcontract or procurement as the State or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance provided, however, that in the event an Engineer becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Engineer may request the Texas Department of Transportation to enter into such litigation to protect the interests of the State; and, in addition, the Engineer may request the United States to enter into such litigation to protect the interests of the United States.

## **ARTICLE 26. PATENT RIGHTS**

The State and the U. S. Department of Transportation shall have the royalty free, nonexclusive and irrevocable right to use and to authorize others to use any patents developed by the Engineer under this contract.

## **ARTICLE 27. COMPUTER GRAPHICS FILES**

The Engineer agrees to comply with Attachment G, Computer Graphics Files for Document and Information Exchange, if determined by the State to be applicable to this contract.

## **ARTICLE 28. CHILD SUPPORT CERTIFICATION**

Under Section 231.006, Texas Family Code, the Engineer certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate. If the above certification is shown to be false, the Engineer is liable to the state for attorney's fees, the cost necessary to complete the contract, including the cost of advertising and awarding a second contract, and any other damages provided by law or the contract. A child support obligor or business entity ineligible to receive payments because of a payment delinquency of more than thirty (30) days remains ineligible until: all arrearages have been paid; the obligor is in compliance with a written repayment agreement or court order as to any existing delinquency; or the court of continuing jurisdiction over the child support order has granted the obligor an exemption from Subsection (a) of Section 231.006, Texas Family Code, as part of a court-supervised effort to improve earnings and child support payments.

## **ARTICLE 29. DISPUTES**

**A. Disputes Not Related to Contract Services.** The Engineer shall be responsible for the settlement of all contractual and administrative issues arising out of any procurement made by the Engineer in support of the services authorized herein.

**B. Disputes Concerning Work or Cost.** Any dispute concerning the work hereunder or additional costs, or any non-procurement issues shall be settled in accordance with 43 Texas Administrative Code §9.2.

## **ARTICLE 30. SUCCESSORS AND ASSIGNS**

The Engineer and the State do each hereby bind themselves, their successors, executors, administrators and assigns to each other party of this agreement and to the successors, executors, administrators and assigns of such other party in respect to all covenants of this contract. The Engineer shall not assign, subcontract or transfer its interest in this contract without the prior written consent of the State.

## **ARTICLE 31. SEVERABILITY**

In the event any one or more of the provisions contained in this contract shall for any reason, be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision thereof and this contract shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.

## **ARTICLE 32. PRIOR CONTRACTS SUPERSEDED**

This contract constitutes the sole agreement of the parties hereto for the services authorized herein and supersedes any prior understandings or written or oral contracts between the parties respecting the subject matter defined herein.

## **ARTICLE 33. CONFLICT OF INTEREST**

### **A. Representation by Engineer.**

The Engineer represents that its firm has no conflict of interest that would in any way interfere with its or its employees' performance of services for the department or which in any way conflicts with the interests of the department. The Engineer further certifies that this agreement is not barred because of a conflict of interest pursuant to Texas Government Code, Section 2261.252, between it and the State. Specifically, the Engineer certifies that none of the following individuals, nor any or their family members within the second degree of affinity or consanguinity, owns 1% or more interest, or has a financial interest as defined under Texas Government Code, Section 2261.252(b), in the Engineer: any member of the Texas Transportation Commission, TxDOT's Executive Director, General Counsel, Chief of Procurement and Field Support Operations, Director of Procurement, or Director of Contract Services. The firm shall exercise reasonable care and diligence to prevent any actions or conditions that could result in a conflict with the department's interests.

**B. Certification Status.** The Engineer certifies that it is not:

1. a person required to register as a lobbyist under Chapter 305, Government Code;
2. a public relations firm; or
3. a government consultant.

**C. Environmental Disclosure.** If the Engineer will prepare an environmental impact statement or an environmental assessment under this contract, the Engineer certifies by executing this contract that it has no financial or other interest in the outcome of the project on which the environmental impact statement or environmental assessment is prepared.

**D. Commencement of Final Design.** This contract does not obligate the State to proceed with final design for any alternative. On completion of environmental documentation, the State will consider all reasonable alternatives in a fair and objective manner. Notwithstanding anything contained elsewhere in the contract or in any work authorization, the Engineer may not proceed with final design until after all relevant environmental decision documents have been issued.

**E. Restrictions on Testing.** If the Engineer will perform commercial laboratory testing under this contract, on any project the Engineer may not perform more than one of the following types of testing:

1. verification testing;
2. quality control testing; or
3. independent assurance testing

#### **ARTICLE 34. OFFICE OF MANAGEMENT AND BUDGET (OMB) AUDIT REQUIREMENTS**

The parties shall comply with the requirements of the Single Audit Act of 1984, P.L. 98-502, ensuring that the single audit report includes the coverage stipulated in 2 CFR 200.

#### **ARTICLE 35. DEBARMENT CERTIFICATIONS**

The parties are prohibited from making any award at any tier to any party that is debarred or suspended or otherwise excluded from or ineligible for participation in Federal Assistance Programs under Executive Order 12549, "Debarment and Suspension." By executing this agreement, the Engineer certifies that it is not currently debarred, suspended, or otherwise excluded from or ineligible for participation in Federal Assistance Programs under Executive Order 12549. The parties to this contract shall require any party to a subcontract or purchase order awarded under this contract to certify its eligibility to receive Federal funds and, when requested by the State, to furnish a copy of the certification.

#### **ARTICLE 36. E-VERIFY CERTIFICATION**

Pursuant to Executive Order RP-80, Engineer certifies and ensures that for all contracts for services, Engineer shall, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of this agreement to determine the eligibility of:

1. All persons employed by Engineer during the term of this agreement to perform duties within the State of Texas; and
2. All persons, including subcontractors, assigned by Engineer to perform work pursuant to this agreement.

Violation of this provision constitutes a material breach of this agreement.

#### **ARTICLE 37. RESTRICTIONS ON EMPLOYMENT OF FORMER STATE OFFICER OR EMPLOYEE**

The Engineer shall not hire a former state officer or employee of a state agency who, during the period of state service or employment, participated on behalf of the state agency in this agreement's procurement or its negotiation until after the second anniversary of the date of the officer's or employee's service or employment with the state agency ceased.

#### **ARTICLE 38. NON-DISCRIMINATION PROVISIONS**

**A. Relocation Assistance:** The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects.

##### **B. Disability:**

- a) Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794 et. Seq.), as amended, prohibits discrimination on the basis of disability; and 49 CFR Part 27.
- b) Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public



accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by the Department of Transportation regulations at 49 C.F.R. parts 37 and 38.

**C. Age:** The Age Discrimination Act of 1974, as amended, (42 U.S.C. § 6101 et. Seq.), prohibits discrimination on the basis of age.

**D. Race, Creed, Color, National Origin, or Sex:**

- a) The Airport and Airway Improvement Act of 1982 (49 U.S.C. § 4.71, Section 4.7123), as amended, prohibits discrimination based on race, creed, color, national origin, or sex.
- b) The Federal Aviation Administration's Nondiscrimination state (4 U.S.C. § 47123) prohibits discrimination on the basis of race, color, national origin, and sex.
- c) Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et. seq.), prohibits discrimination on the basis of sex.
- d) Title IX of the Education Amendments of 1972, as amended, prohibits discrimination because of sex in education program or activities (20 U.S.C. 1681 et. seq.).

**E. Civil Rights Restoration Act:** The Civil Rights Restoration Act of 1987 (PL 100-209), Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs and activities" to include all of the programs or activities of the Federal-aid recipients, subrecipients and contractors, whether such programs or activities are Federally funded or not.

**F. Minority Populations:** Executive Order 12808, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority and low-income populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations.

**G. Limited English Proficiency:** Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, the Engineer must take reasonable steps to ensure that LEP persons have meaningful access to its programs (70 Fed. Reg. at 74087 to 74100).

## **ATTACHMENT B**

### **SERVICES TO BE PROVIDED BY THE STATE**

**Subject to availability, the services to be provided or performed by the State will include, but not be limited to, the following items:**

- A. Name, address and phone number of the State's Project Manager.
- B. Review, approve and update Project Design Criteria.
- C. Plans, accident data, speed zone strip maps, transportation system data, corridor studies and reports, Land Use Plans and Maps, and any documentation which would assist in the completion of the project
- D. Review recommendations offered by the Engineer, and approve or reject any or all work performed under this project.
- E. Periodically review progress of work.
- F. Review and implement timing plans in the field after the technical review meeting. Programming of the signal controllers to implement the timing plans will normally be the responsibility of the Engineer.
- G. Existing phasing and timing sheets, the clearance intervals to be used and the pedestrian walk and don't walk times for all of the intersections in the specific project.
- H. Example of a typical signal design for the Engineer to use as a guide, if applicable.
- I. Copy of scale drawings (construction, record, or "as-built" which show the existing pavement widths, lane widths, stop bar locations, etc.).
- J. Existing controller interval timing (minimum and maximum greens, passage times, pedestrian clearance, yellow and red clearances, etc.).
- K. Existing coordination and timing, if any.
- L. Example of the required data entry format for the new coordination timing to be developed by the engineer for each different brand and model of the controller.
- M. Develop and maintain a website that will be made available in advance of the first public meeting. The website will include project information including documents related to project background, study area limits, study objectives, project photos, study area maps, material presented at public meetings, and contact information

for requesting additional information. The project website will be updated after each set of public meetings and the final report in PDF format will be posted to give the general public access to the document.

- N. Example of an Access Management Study, if applicable.

### **Intelligent Transportation System (ITS) Standard Sheet and Specifications Development**

- A. Attend meetings with Engineer, state agencies and vendor and manufacturers
- B. Review and comment on ITS vendor documentation including any vendor product data sheets.
- C. Review and comment on ITS standard sheet and specification matrix spreadsheet(s) (new and revised)
- D. ITS existing standard sheets, previously used detail sheets and specifications, if available.
- E. Review the draft and final Surveys of Technologies, Engineer's recommendations and justification
- F. Review and comment on draft standard sheets and specifications
- G. Review, comment and approve each Specification Compliance Matrix Table listing vendor(s) and manufacturer(s).
- H. Review and comment on each revised Specification Compliance Matrix Table and Comment Resolution Document
- I. Submit standard sheets to the Districts, Divisions, Association of General Contractors (AGC), American Traffic Safety Services Association (ATSSA), and Federal Highway Administration (FHWA) for their review and comment
- J. Review and comment by the State Standards Engineer on standards sent by the Engineer for approval as a statewide standard sheet
- K. Post final approved standard sheets
- L. Submit specifications to the State Specification Committee for approval as a statewide specification. The State Specification Committee will review and comment on the specification
- M. Submit the specification(s) after comments by the State Specification Committee have been resolved by the Engineer, to the Association of General Contractors (AGC) and FHWA for review and comment (by the State Specification Committee).
- N. Post final approved specification(s)

## ATTACHMENT C

### SERVICES TO BE PROVIDED BY THE ENGINEER

The Engineer shall provide engineering services required for performing traffic engineering studies and design including: signal warrant analyses, speed zone studies, origin and destination studies, parking supply and demand studies, travel time delay studies, capacity analysis studies, surveying, minor roadway design, minor drainage design, traffic signal design, illumination design and signing and striping design; access management and traffic mobility studies to identify short, medium, and long-range transportation improvements to improve safety, traffic flow and reduce motorist delay; Intelligent Transportation System (ITS) analysis and project design. The engineering services to be performed also include travel time studies, traffic signal timing studies and traffic operations evaluations. These services shall include traffic volume and turning movement count data collection necessary to support the design process.

**DESIGN CRITERIA.** The Engineer shall prepare all work in accordance with the latest version of applicable State procedures, specifications, manuals, guidelines, standard drawings, standard specifications or previously approved special provisions and special specifications to include the *Roadway Design Manual*, *Hydraulic Design Manual*, the *Texas Manual on Uniform Traffic Control Devices (TMUTCD)*, *Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges*, *PS&E Preparation Manual*, *Traffic Signals Manual*, *Highway Illumination Manual*, *Procedures for Establishing Speed Zones*, *Transportation Research Board (TRB) Highway Capacity Manual*, *Institute of Transportation Engineers (ITE) Trip Generation Manual*, *American with Disabilities Act Accessibility Guidelines (ADAAG)*, the *Texas Accessibility Standards (TAS)*, the *AASHTO Guide for the Development of Bicycle Facilities*, *National Electrical Code (NEC)*, and other State approved manuals. When design criteria are not identified in State manuals, the Engineer shall notify the State and refer to the American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Street* (latest edition).

**RIGHT-OF-ENTRY AND COORDINATION.** The Engineer shall notify the State and secure permission to enter private property to perform any surveying, engineering, or other activities needed for the State's right-of-way (ROW). In accordance with the State's policy with the general public, the Engineer shall not commit acts, which would result in damages to private property, and the Engineer shall make every effort to comply with the wishes and address the concerns of affected private property owners. The Engineer shall contact each property owner prior to any entry onto the owner's property, and shall request concurrence from the State prior to each entry.

**PROGRESS REPORTING AND INVOICING.** The Engineer shall invoice according to Function Code breakdowns shown in Attachment "C" of the Contract for Engineering Services and Exhibit "D" - *Fee Schedule*, of each Work Authorization. The Engineer shall submit each invoice in a format acceptable to the State.

With each invoice, the Engineer shall include a completed Projected vs. Actual Contract Invoices form. The Engineer shall submit a monthly written progress report to the State's Project Manager regardless of whether the Engineer is invoicing for that month. The Engineer's written progress report shall describe activities during the reporting period; activities planned for the following period; problems encountered and actions taken to remedy them; list of meetings attended; and overall status, including a per cent complete by task.

The Engineer shall prepare a design time schedule and an estimated construction contract time schedule, using the latest version of Primavera software or any State's approved programs. The schedules shall indicate tasks, subtasks, critical dates, milestones, deliverables and review requirements in a format that depicts the interdependence of the various items. The Engineer shall provide assistance to State personnel in interpreting the schedules. The Engineer shall schedule milestone submittals at 30%, 60%, 90% and final project completion phases. The Engineer shall advise the State in writing if the Engineer is not able to meet the scheduled milestone review date.

Once the project goes to letting, all electronic files shall be delivered within 30 days of written request in conformance with the latest version of the State's Document and Information Exchange (Attachment G).

Final payment is contingent upon the State's receipt and confirmation by the State's Project Manager that the electronic files run and is formatted in accordance with Attachment G of the contract and all review comments are addressed.

The Engineer shall prepare a letter of transmittal to accompany each document submittal to the State. At a minimum, the letter of transmittal must include the State's Control-Section-Job (CSJ) number, the highway number, County, project limits, State's contract number, and State's work authorization number.

**TRAFFIC CONTROL.** The Engineer shall provide all planning, labor, and equipment to develop and to execute each Traffic Control Plan (TCP) needed by the Engineer to perform services under each Work Authorization. The Engineer shall comply with the requirements of the most recent edition of the TMUTCD. The Engineer shall submit a copy of each TCP to the State for approval prior commencing any work on any State roadway. The Engineer shall provide all signs, flags, and safety equipment needed to execute the approved TCP. The Engineer shall notify the State in writing twenty-four (24) hours in advance of executing each TCP requiring a lane closure, and shall have received written concurrence from the State prior to beginning the lane closure. The Engineer's field crew shall possess a copy of the approved TCP on the job site at all times and shall make the TCP available to the State for inspection upon request. The Engineer shall assign charges for any required traffic control to the applicable function code.

**STATE-CONTROLLED WATERS.** The placement of a new structure or modification of an existing structure(s) within State-Controlled waters will require confirmation that said structure(s) lie within the General Land Office (GLO) state owned land and whether the crossing is tidally influenced or not. Consequently, the Engineer shall request, as early

in the design process as possible, that the State determine whether the proposed improvements are found within the tidal GLO, is a submerged GLO property or a non-tidal GLO property. The State may request assistance from the Engineer to prepare an exhibit demonstrating the location of the proposed improvements on the GLO State Owned Map for the project location of an assigned State's District.

**COORDINATION.** The Engineer shall coordinate issues and communications with State's internal resource areas through the State's Project Manager. The State will communicate the resolution of issues and provide the Engineer direction through the State's Project Manager.

**LEVEL OF EFFORT.** For each work authorization, the Engineer shall base the level of effort at each phase on the prior work developed in earlier phases without unnecessary repetition or re-study. As directed by the State, the Engineer shall provide written justification regarding whether or not additional or repeated level of effort of earlier completed work is warranted, or if additional detail will be better addressed at a later stage in the project development.

**QUALITY ASSURANCE (QA) AND QUALITY CONTROL (QC).** The Engineer shall provide peer review at all levels. For each deliverable, the Engineer shall have some evidence of their internal review and mark-up of that deliverable as preparation for submittal. A milestone submittal is not considered complete unless the required milestone documents and associated internal red-line mark-ups are submitted. The State's Project Manager may require the Engineer to submit the Engineer's internal mark-up (red-lines) or comments developed as part the Engineer's quality control step. When internal mark-ups are requested by the State in advance, the State, at its sole discretion, may reject the actual deliverable should the Engineer fail to provide the evidence of quality control. The Engineer shall clearly label each document submitted for quality assurance as an internal mark-up document.

The Engineer shall perform QA and QC on all survey procedures, field surveys, data, and products prior to delivery to the State. If, at any time, during the course of reviewing a survey submittal it becomes apparent to the State that the submittal contains errors, omissions, or inconsistencies, the State may cease its review and immediately return the submittal to the Engineer for appropriate action by the Engineer. A submittal returned to the Engineer for this reason is not a submittal for purposes of the submission schedule.

**USE OF STATE'S STANDARDS.** The Engineer shall identify and insert as frequently as is feasible the applicable, current State's Standard Details, District Standard Details, or miscellaneous details that have been approved for use in the plan. The Engineer shall sign, seal, and date each Standard and miscellaneous detail if the Standard selected has not been adopted for use in a District. The Engineer shall obtain approval for use of these details during the early stages of design from the State Project Manager or designated State Area Engineer. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment. The Engineer shall retain the responsibility for the appropriate selection of each Standard identified for use within their design.

**ORGANIZATION OF PLAN SHEETS.** The plans, specifications and estimate (PS&E) shall be complete and organized in accordance with the latest edition of the State's PS&E Preparation Manual. The PS&E package shall be suitable for the bidding and awarding of a construction contract, and in accordance with the latest State's policies and procedures, and the District's PS&E Checklist.

**LIMITED ACCESS TO STATE'S DCIS.** The Engineer shall receive limited access to the State's DCIS to update responsible engineer information, sign, seal and date, build specification list and develop Project estimate.

As shown on the table below, the Engineer shall access and update DCIS with the following function codes.

DCIS Update Screens	Required Access Criteria for DCIS Function Code	DCIS Function Code
S01-Responsible Engineer Update S03-Sealing, Signing & Dating P04-Project Estimate C03-Build Specifications	Consultant Registered Professional Engineer (PE)	CONENG
P04-Project Estimate C03-Build Specifications	Consultant does not have to be a PE	CONEST

When requested by the State, the Engineer shall sign the following TxDOT forms: 1828, Information Security Compliance Agreement; 1980, Request for External Access to the State's Information Systems; 2110, Information Resources Confidentiality Agreement, and DR-IRI Information Access Request Form. These access rights will be revoked after the project is let.

**ORGANIZATION OF DESIGN PROJECT FOLDER AND FILES (ELECTRONIC PROJECT FILES).** The Engineer shall organize the electronic project files in accordance with the State's File Management System (FMS) format. With the approval of the State, the Engineer may maintain the project files in the State's ProjectWise container

### **TASK DESCRIPTIONS AND FUNCTION CODES**

The Engineer shall categorize each task performed to correspond with the Function Codes (FC) and Task Descriptions.

### **FUNCTION CODE 102 (102, 110) – FEASIBILITY STUDIES**

#### **A. Traffic Signal Studies, Speed Zone Studies, Origin and Destination Studies, Parking Supply and Demand Study, Travel Time and Delay Study, Capacity Analysis Study and Traffic Project Studies**

##### **1. TRAFFIC SIGNAL STUDIES**

The Engineer shall conduct traffic signal studies for designated locations or sections of roadways for use in authorizing traffic signals and other recommendations for improving traffic operations.

The study shall contain the following:

- a. Perform manual turning movement counts at the study location during a weekday (Tuesday, Wednesday or Thursday) for the following periods: 6:00 – 9:00 a.m., 11:00 –2:00 p.m., and 4:00-6:00 p.m., or as directed by the State. Counts shall be recorded at 15 minute and hourly intervals.
- b. Perform 24 hour traffic counts (15 minute and hourly intervals) at the study location and/or section of roadway.
- c. Perform pedestrian volume counts on each approach at the study location for three-hour time periods mentioned above or as directed by the State.
- d. Conduct a site inspection at the study location and record traffic characteristics observed in the field. The field work may include but is not limited to taking measurements, locating utilities, locating existing signal equipment, identifying existing conditions and taking digital photographs of the intersection (minimum of one photographs per approach).
- e. Prepare condition diagram showing details from site inspection and field work mentioned above.
- f. Prepare a site map of the area where the study is requested. Information shall consist of existing control devices at the intersection and all existing signals for one mile.
- g. Prepare and submit two reports, to the State, which summarizes the findings of the traffic and pedestrian counts and field inventories for each location. The reports shall include: 1) existing condition diagrams, field photographs, traffic counts, 2) Sealed Engineering Warrant Study. The Engineer shall address all of the State's review comments.

## 2. SPEED ZONE STUDIES

- a. The Engineer shall conduct speed zone surveys and reports for designated locations to provide the basis for regulatory and advisory speed zoning. The Engineer shall collect all necessary data according to the State's *Procedures for Establishing Speed Zones*.

The study shall contain the following:

- 1) Collect data at speed check stations.
  - 2) Complete studies for data collection by the State
  - 3) Calculate 85<sup>th</sup> Percentile speeds.
  - 4) Determine Speed and Zone Lengths.
  - 5) Complete entries to strip maps using MicroStation V8i format.
- b. The Engineer shall prepare strip maps on which all pertinent data to regarding the speed zones are recorded. Strip Maps shall be prepared at a scale of 5 inches = 1 mile and in accordance with the State's *Procedure*



*for Establishing Speed Zones, Section 3, pages 2 of 9 and 3 of 9.* The strip maps shall contain the following information:

- 1) Name and highway number of the route to be zoned. Show all names and highway numbers if the route has more than one name or highway number. Indicate sections and lengths to be zoned by Texas Transportation Commission minute order with a wide center line on the strip map.
- 2) Crossroads and cross streets. Show all names and highway numbers if the crossroads and cross streets have more than one name and carry one or more highways. Wider lines than those used for county roads and city streets shall show numbered highway routes.
- 3) Urban districts. Urban districts shall be indicated clearly under the heading "Development". "Urban district" means the territory continuous to and including any highway or street which is built up with structures devoted to business, industry or dwelling houses, situated at intervals of less than one hundred (100) feet for a distance of one-quarter (1/4) mile or more on either side.
- 4) Schools and school crossings. Identify only those schools abutting the highway and show their exact locations. Show all school crosswalks.
- 5) Driveway and Cross streets. Include a line for each driveway along the route. Label the important traffic generators such as factories, drive-in theatres, and other establishments that attract large volumes of traffic.
- 6) Ball bank readings. Perform ball banking measurements to determine curve advisory speed per the Procedures for Establishing Speed Zones.
- 7) Data by which the limits of the zone can be described. These data include milepoints and control and section numbers. Stationing may be used only for new roadways or city streets that do not have established milepoints DFO's are not milepoints.
- 8) The limits of any incorporated city or town. Milepoints shall be shown for these points.
- 9) All railroad crossings with name of railroad. Indicate the number of tracks and type of grade crossing protection.
- 10) Show traffic control devices such as signals and regulatory and warning signs including existing speed limit signs.
- 11) Plot accident data on the strip map as requested by the State. Crash data will be provided by the State. This data is confidential and is not subject to Open Records laws.

- 12) Show land development, i.e., open, residential, business.
  - 13) Show ROW, road bed width, surface width and type.
  - 14) Show restricted sight distance, curves over 2 degrees and grades over 3%
- c. The Engineer shall provide deliverables including two copies of the data compiled on a speed zone strip map prepared on Graphics MicroStation V8i format.
- d. The minimum Computer Aided Design and Drafting (CADD) detailing and plotting requirements are:
- 1) All CADD files shall be in 2D.
  - 2) All CADD files provided shall be MicroStation generated.
  - 3) The name of the CADD files shall appear on each drawing, with the text large enough to be legible on half scale (11 inches X 17 inches) drawings.
  - 4) All CADD files shall be created using the State's font library (txfont) and the State's resource file (txdot.rsc), line style library (lstyle.rsc) using font 1 only; this shall ensure proper display of text on standards and transferred files. The State's font library of font resource file shall not be renamed or modified. These supporting files can be found on the internet in Bridge Design Standards under CADD Standards. Internet address:  
[www.dot.state.tx.us/insdtdot/orgchart/cmd/cserve/standard/bridge-e.htm](http://www.dot.state.tx.us/insdtdot/orgchart/cmd/cserve/standard/bridge-e.htm) .
  - 5) Text size for CADD files shall use normal Leroy lettering sizes that shall match hand Leroy lettering after plotting a full scale (22 inches X 34 inches) sheet. Setting 4mm or Leroy lettering text size 140 properly on a 22 inches X 34 inches plotted sheet, shall automatically calibrate the Leroy lettering sizes for 11 inches X 17 inches plots.
- e. The Engineer shall separate the Strip Maps into 11" X 17" plan sheets.
- f. Map created by the Engineer for City Ordinance from city limits to city limits inside the city to show the zones based on the latest speed zone City Ordinance.
- g. Map created by the Engineer for the Texas Transportation Commission minute order outside city limits (between cities) to show the zones based on the Texas Transportation Commission minute order.
3. ORIGIN AND DESTINATION STUDY
- The Engineer shall conduct origin and destination studies for designated locations to obtain information on existing travel practices for improving traffic operations.

The Engineer shall perform the following:

- a. Provide documentation as to where motorists begin and end their trips.
- b. Provide documentation on the type of vehicle used to travel (e.g., automobile, public transit, truck, etc).
- c. Provide documentation when motorists travel (time of day).
- d. Provide documentation why motorist travel (e.g., work, shop, eat, etc.).
- e. Provide documentation where motorists park their vehicles.
- f. Prepare site map of the area where the study is requested.
- g. Analyze all collected documentation and prepare and submit two reports, one bound set and one unbound set, to the State, which summarizes the findings.

#### 4. PARKING SUPPLY AND DEMAND STUDY

The Engineer shall conduct parking supply and demand studies for designated locations to identify inadequacies and to develop recommendations to improve parking supply in a specific area.

The Engineer shall perform the following:

- a. Provide documentation on parking supply inventory.
- b. Determine and provide documentation on characteristics of current parking usage.
- c. Determine and provide documentation on parking demand estimates.
- d. Determine legal, financial and administrative factors in developing recommendations to improve parking supply.
- e. Prepare site map of the area where the study is requested.
- f. Analyze all collected documentation and prepare and submit two reports, one bound set and one unbound set, to the State, which summarizes the findings.

#### 5. TRAVEL TIME AND DELAY STUDY

The Engineer shall conduct travel time and delay studies for designated locations to evaluate existing levels of service and to make recommendations for improving traffic flow/operations.

The Engineer shall perform the following:

- a. Perform a series of test vehicle runs through the section of roadway to obtain representative travel times. The floating car or average speed techniques (or both) may be used to obtain travel time.

- b. Perform the moving-vehicle method of volume counting to obtain travel times by following test vehicle procedures and computing the results.
- c. Perform the license plate method by stationing one or more observers at each entrance and exit of the study section to record the time and license number of each vehicle as it passes the observation point.
- d. Perform the direct observation and timing method if the observer can see both the entrance and exit points.
- e. Perform the interview technique method.

## 6. CAPACITY ANALYSIS STUDY

The Engineer shall conduct capacity analysis studies for designated locations and sections of roadway and make recommendations for improving traffic flow. Engineer shall perform use the TRB Highway Capacity Manual to analyze and make appropriate recommendations.

The Engineer shall perform the following:

- a. Perform 24 hr and turning movement traffic counts as stated under traffic engineering study.
- b. Conduct a site inspection as stated under traffic engineering study.
- c. Prepare site map as stated under traffic engineering study.
- d. Analyze the data, prepare and submit two reports, one bound set and one unbound set, to the State, which summarizes the findings and recommended improvements (if appropriate).

## 7. TRAFFIC PROJECT STUDIES

The Engineer shall perform the following:

- a. Meetings and Teleconferences - The Engineer shall participate in working meetings or teleconferences with the State, the Transportation Planning and Programming Division of the State (TPP), Metropolitan Planning Organization (MPO), and other pertinent agencies. The first meeting shall be the kick-off meeting to verify the project schedule, points of contact, study methodology including definition of required analysis scenarios and analysis to be conducted by others, acquisition and application of the MPO TransCAD model, data sources, traffic factors, development of design traffic volumes, and documentation required to address project-specific criteria required by the State. The project kick-off meeting shall be held at the State's District Office. The Engineer shall prepare meeting notes and the decisions regarding the study design process and proposed methodology shall be documented in a preliminary meeting memorandum and submitted for review and approval by the State.
- b. Methodology Development - The Engineer shall develop a proposed methodology for estimating traffic projections for each component of the project corridor.

- c. The Engineer shall review the methodology with the State. Based on these discussions, the Engineer shall address comments and incorporate revisions, as necessary, to the methodology.
- d. The Engineer shall submit a memorandum outlining the final methodology for estimating traffic projections for the State's review and approval.
- e. Existing Traffic Counts and Data Review - The Engineer shall review necessary project-related traffic data provided by the State. This data shall consist of traffic volume counts, corridor or study area historical count year data from permanent count stations, vehicle classification data and historical truck data.
- f. The Engineer shall collect existing peak-hour traffic data on the project corridor. The existing traffic data includes the following:
  - 1) A.M. and P.M. peak-hour turning volumes for the main lanes on the project corridor.
  - 2) A.M. and P.M. peak-hour turning volumes at all signalized intersections as shown on the stick diagram for the project corridor.
  - 3) A.M. and P.M. peak-hour ramp volumes including direct connectors on the project corridor.
  - 4) A.M. and P.M. peak-hour frontage road volumes on the project corridor.
  - 5) A.M. and P.M. peak-hour directional distribution
  - 6) K factor
- g. The Engineer shall visit the project corridor and make observations regarding traffic patterns, existing areas of congestion, existing developments in the corridor and geometric conditions.
- h. The Engineer shall review the MPO's Travel Demand Model Network and shall recommend updates to the model to reflect the schematic provided by the State. Any changes to the network, and any new model runs shall be performed by the MPO.
- i. The Engineer shall submit an Existing Traffic Report detailing the findings. In addition the Engineer shall provide the existing traffic numbers on the stick diagram in MicroStation format. The report and stick diagrams shall be submitted to the State for review and approval.
- j. GIS Maps and Aerial Photography - The Engineer shall obtain necessary project-related GIS-based roadway map data and aerial photography for the project study area provided by the State.
- k. Projected Traffic Volumes - The Engineer shall develop the traffic projections for the significant roadway segments and cross streets within the study corridor, based on the approved methodology. The projected traffic data includes:

- 1) Annualized Average Daily Traffic (AADT) and Design Hourly Volume (DHV) for all proposed facilities in the corridor, including main lanes, ramps, direct connectors, intersections, and frontage roads
  - 2) Percent of trucks for both the AADT and DHV
  - 3) Directional distribution
  - 4) K factor (DHV/AADT)
  - 5) Vehicle classification-light duty, medium duty and heavy duty
- l. The Engineer shall develop the following traffic volumes and the data necessary for pavement design based on the approved methodology:
- 1) Base year AADT
  - 2) Future year AADT
  - 3) Growth rate per year between base and forecast years
  - 4) Percent trucks AADT
- m. The Engineer shall input the traffic projection results into the Traffic Analysis for Highway Design Tables, and shall generate any necessary Traffic Projections Graphics. The traffic Projections Graphics shall be developed by the Engineer in coordination with the State. The Engineer shall also show the traffic volumes on the schematic that is provided by the State (AADTs and DHVs).
- n. The Engineer shall review the Traffic Analysis for Highway Design with TPP and the State. Based on comments received, the Engineer shall revise and finalize the tables and graphics.

**DELIVERABLES:**

The Engineer shall provide the following:

- Methodology Memos
- Reports
- Presentations
- Traffic Data Reports including computer model and output, Level of Service delay breakdown
- Location Maps
- Presentations
- Straight line diagram graphics and the Traffic Analysis for Highway Design tables for review and approval by the State. The approved graphics and tables shall be submitted in hard copy and in electronic form.
- Traffic Projections in approved TPP format

**B. Travel Time Studies, Traffic Signal Timing Studies and Traffic Operations Evaluations****1. DATA COLLECTION**

The Engineer shall collect, review and evaluate data described below.

- a. The Engineer shall collect 24-hour volume data at two locations in each direction on each arterial in the specific project. These counts must include a typical weekday, a Saturday and a Sunday.
- b. The Engineer shall collect turning movement volume data at selected intersections on a typical weekday during the morning, midday, and afternoon peak periods and on a Saturday peak period. The peak periods must be determined using the 24-hour volume data collected above. The peak periods during which turning movement counts are collected are each typically two hours in length.
- c. The Engineer shall determine the peak hour factors for all the turning movement data collected and submitted in a tabular form. The Engineer shall also present the peak hour turning movement data in map format.

**2. TRAVEL TIME RUNS**

The Engineer shall conduct travel time studies. A travel time study shall consist of a total of six travel time runs in each direction on each arterial for the morning, midday, afternoon, and Saturday peak periods using PC-Travel software. Three of the runs are made before implementing new timing. The remaining three runs are made after implementing and fine tuning the new timing. The Engineer shall analyze any travel time data collected and provide the State with before and after comparisons in the form of tables and graphs.

**3. TIMING PLAN GENERATION**

The Engineer shall perform timing plan generation.

- a. The Engineer shall perform capacity analysis at each intersection to evaluate the existing timings and to determine the saturation flow rates and the existing Level of Service (LOS). The Engineer shall perform Synchro or PASSER optimization analysis using the existing volumes to determine the best cycle length for each peak period. The Engineer shall summarize these results in a tabular and graphical format. Determining the best cycle length may require coordination with crossing arterials that are in existing systems.
- b. The Engineer shall generate the time-space diagrams for the morning, midday, afternoon, and Saturday peak periods for each arterial in each specific project. The Engineer shall submit the generated timing plans and time-space diagrams to the State for review. The Engineer shall incorporate the appropriate revisions into the timing plans and time-space diagrams and shall submit the revised timing plans and time-space

diagrams to the State along with the Preliminary Report. The Engineer shall submit controller timing sheets that are appropriate for each controller manufacturer.

#### 4. PRELIMINARY REPORT

The Engineer shall summarize the data collection and timing plan generation results for each signal system to be timed in a Preliminary Report to be submitted to the State for review.

- a. The Engineer shall submit to the State one copy of the signal timing plans - splits and offsets - in a tabular form and also one set of time-space diagrams for each signal system for each peak period. The Preliminary Report may be submitted as either a hardcopy or by e-mail in PDF format.
- b. The Engineer shall meet the State staff for a technical review meeting. The Engineer shall discuss the time frame for implementing the timing plans in the field by the State or Engineer. The Engineer shall incorporate the review comments from this meeting into the Final Report.

#### 5. IN FIELD FINAL TUNING

For each signal system to be timed, the Engineer shall make recommendations and respond to questions in the field during the fine tuning process.

- a. When the new timing plans are operational, the Engineer shall provide qualified engineers for on-site fine tuning assistance. During the course of this assistance, the engineers shall observe the actual operation of the new timing plans and recommend field adjustments to improve traffic operations to be made by the State or, at the discretion of the State, by the Engineer.
- b. The Engineer shall notify the State when beginning and ending the implementation. During implementation, interim adjustments to timing shall be noted on the cabinet timing sheet. Once the final timing is established, the Engineer shall upload the intersection into the database (typically Eagle Actra) and generate the following:
  - 1) A controller data file (e.g., \*.int) file to be e-mailed to the State,
  - 2) A \*.pdf file of the signal timing to be e-mailed to the State, and
  - 3) A paper copy of the signal timing to be placed in the signal cabinet by the Engineer

#### 6. CONSTRUCTION PROJECT TEMPORARY SIGNAL TIMING

The Engineer shall perform Construction Project Temporary Signal Timing services.

- a. The Engineer shall make on-site adjustments to the signal phasing and timing of signals in a construction project.



- b. The Engineer shall provide documentation of timing changes as well as Traffic Signal Maintenance Reports for each adjustment. Interim adjustments to timing shall be noted on the cabinet timing sheet. Other reports are not necessary for construction timing unless specifically requested in the work authorization.

## 7. DOCUMENTING VISITS TO FIELD

The Engineer shall complete a Maintenance Report every time the Engineer visits the signal location. The Maintenance Report shall be transmitted to the state within two business days of the visit. The report shall include the name of the person or persons making the visit, the reason for the visit, what was done, the date of the visit, the arrival time, and the departure time.

## 8. FINAL REPORT

The Engineer shall prepare and submit a Final Report to the State.

- a. The Final Report shall consist of:
  - 1) A report covering the methodology used, the alternatives considered, recommendations of the Engineer, and what was done;
  - 2) Photographs of each intersection (at least two quality photographs per approach
  - 3) A photograph of the interior of the cabinet;
  - 4) A drawing of each intersection showing phasing, signal indications, pavement markings, signing (including advance signing), and any other relevant information;
  - 5) Turning movement counts and 24-hour counts in tabular format;
  - 6) Turning movement counts in map format
  - 7) A Gantt chart indicating plans that will run throughout the week;
  - 8) A Yellow-Change/Red-Clearance Interval Worksheet for each intersection;
  - 9) A signal sequence chart for each plan at each intersection (based on constant vehicle demand); and
  - 10) A railroad preemption form (if required in work authorization)
- b. For each signal system timed by the Engineer, the Engineer shall submit a draft Final report for review by the State. The Engineer shall meet with the State to review the draft Final Report.
- c. After the meeting with the State to review the draft Final Report, the Engineer shall incorporate review comments into the Final Report.

**9. TRAFFIC OPERATIONS EVALUATIONS**

The Engineer shall provide an evaluation on existing traffic signal operations at assigned intersections. Within 24-hours of the execution of the work authorization, the Engineer shall visit the site and provide an initial assessment of the existing traffic signal operations.

- a. A Traffic Operations Evaluation Request may include:
  - 1) Field observations, including existing signal operations;
  - 2) Collection of traffic counts;
  - 3) Preparation and implementation of signal timing plans;
  - 4) Preparation of phasing plans;
  - 5) Identifying and correcting hardware problems
  - 6) Identifying and correcting other operations issues; and
  - 7) Developing system maps and intersection graphics for the Eagle Actra or the Econolite Aries traffic control systems
- b. The Engineer shall implement, or assist State personnel with implementation, of proposed timing plans as required.

**DELIVERABLES**

After the meeting with the State to review the draft Final Report, the Engineer shall submit:

- the Final Report incorporating the appropriate review comments from the State;
- a copy of the counts (single-side, three-hole punched);
- a copy of the tabular turning-movement counts (single-sided, three-hole punched);
- railroad preemption forms (if required); and
- a CD-ROM containing the final report, all technical data, and Synchro, PASSER or Centrac files.

The Engineer shall provide:

- Field notes if specified in the work authorization.

**C. Access Management and Traffic Mobility Studies****1. COLLECTION OF DATA, REPORTS AND MAPS**

Once data needs and sources are identified by the Engineer, the Engineer shall contact the appropriate agencies and organizations to obtain the data. Some of the data to be collected by the Engineer shall include, but are not limited to:

- a. Transportation System Data:
  - 1) Detailed existing data from the public entity stakeholders, such as:
    - a) Traffic volumes (daily and peak hour)

- b) Roadway and intersection geometrics
  - c) Traffic signal timings and/or plans
  - d) Median opening locations
  - e) Access to adjacent land uses
  - f) Adjacent land use (classifications, acreage by type) occupancy rates
  - g) Rights-of-way (if available)
  - h) Roadway plans (where applicable)
  - i) Traffic control inventory and condition (signals, stop signs, ramp meters, dynamic message signs, etc.)
- 2) Existing and proposed transit data from applicable transit agencies to include ridership, route information, fares, and travel times, if applicable.
- 3) Most current Transit Service and Facility Planning data from transit agencies, to include any revised Service Plans, if applicable.
- 4) Existing and proposed facilities for pedestrian and bicycle, and other alternative modes of transportation.
- 5) Most current Transportation Plans from the State, and local governments to include committed and planned improvements and travel forecasts.
- 6) Pertinent data on existing and planned major utilities and railroad facilities.
- 7) Most recent digital aerial map of the study area immediately available from the Metropolitan Planning Organization (MPO) or the State or other source as appropriate.
- 8) Recent and historic crash data with corresponding geographical coordinates, supplement available data obtained from area agencies with field data collection, such as traffic volume counts at major intersections and turning movement counts.
- b. Report Data - Obtain previous corridor studies, reports, and plans conducted by other agencies and groups, including materials pertaining to the corridor of interest, other access management studies Access Management Studies), and materials that shall enhance this study's effort.
- c. Land Use Plans and Maps - Obtain mapping showing existing land use (including existing, under construction, and future and planned developments), existing building footprints, traffic generators, major utility ROW, and street names. Obtain existing development guidelines and restrictions, development densities, etc., for the study corridor.

- d. Travel time runs shall be conducted for the corridor. Traffic volume data for this analysis shall be collected as follows:

**Weekday AM/PM, and Weekend Peak Intersection Turning Movement Counts**

- e. Driveway counts for which turning movement counts shall be conducted shall be identified during field reconnaissance at the beginning of the project.

**24-hour Classified Counts –**

**Seven-day Tube Counts –**

**DELIVERABLES**

The Engineer shall provide the following:

- Excel file(s) documenting and recording collected data. Temporal data should be preserved in 15-minute intervals (largest aggregation interval) for all collection locations, days, and their respective hours.

**2. STUDY GOALS AND OBJECTIVES**

The Engineer, in conjunction with the State, shall establish a set of study goals and objectives based on the existing conditions and corridor enhancement needs. Goals shall include long-, medium-, and short-term transportation, parking, land use, urban form, linkage, and physical characteristics.

**a) Evaluation Categories and Measures of Effectiveness**

The Engineer shall develop a set of criteria assist in evaluating each improvement concept. The broad categories of transportation efficiency, right-of-way, socio-economic impacts, urban design, emergency evacuation, environmental impacts, and cost effectiveness shall be defined into evaluation criteria. Key issues and evaluation criteria for analysis shall be established by the Engineer using input from the State, Project Study Steering Committee and stakeholder meetings, as well as the public involvement process.

The following items are used by the Engineer only to serve as possible examples of criteria (measures of effectiveness): mobility, capital cost, operating and maintenance cost, social effects, evacuation resource, economic effects, environmental effects, and implementation timeframe.

Two sets of measures of effectiveness shall be developed by the Engineer. One set shall apply to major thoroughfare and the other set shall apply to cross streets where their impact may be critical. Only major thoroughfare within the study limits and logical termini at the boundaries shall be included in the traffic simulation model.

**DELIVERABLES**

The Engineer shall provide the following:

- Study Goals and Objectives Chart or Table

### 3. EVALUATION OF EXISTING CORRIDOR

- a) **Current Corridor Conditions and Influences.** The Engineer shall identify and quantify influences and concerns based on current conditions. This determination shall serve to identify key issues related to transportation service throughout the corridor. The Engineer shall identify existing travel demands, crash hot spot locations, level-of-service, roadway conditions, and land use; known constraints and sensitive areas within the study area, which might eliminate or otherwise hinder development options; and identify known opportunities conducive to the improvement of development options.
- b) **Existing Access Management Practices.** The Engineer shall identify and summarize the existing access management ordinances, rules and practices of the political entities along the corridor with respect to roadway configuration and access. This summary shall be compared with the State's guidelines and inconsistencies will be noted.
- c) **Identify Access Management Issues and Needs.** Using data collected, the public meetings, stakeholders meetings, and discussions with the Project Study Steering Committee, the Engineer shall identify and categorize the needs and issues along the corridor. This chart or list shall include all applicable intersections, driveways that could potentially be consolidated, median openings, and will be graphically represented on the improvement layout.

Prior to the public meetings, an aerial photo of sufficient scale to view driveways shall be annotated by the Engineer with roadway identifications and other pertinent information with respect to roadway configuration and access. This exhibit shall be used in conjunction with all public meetings to assist the public and stakeholders in describing needs and issues. For the second public meeting, this aerial graphic shall be annotated with proposed solutions, accompanied by appropriate text.
- d) **Technical Memorandum.** The Engineer shall provide a Technical Memorandum creating new or updating the chapters and information in the Final Report, which outlines data assembly and review of existing conditions within the project area including study goals, objectives, and needs, roadway conditions and characteristics, land use, existing traffic characteristics, and an analysis of crash data. The Technical Memorandum shall include information regarding analysis of existing conditions

### DELIVERABLES

The Engineer shall provide the following:

- Exhibit illustrating current corridor influences. (one table top exhibit at 1:200 scale or a sufficient scale to view driveways and one electronic copy).

- Access Management Improvement Layout
- Summary of existing Access Management ordinances rules and practices
- Technical Memorandum (Twenty (20) color copies and one (1) electronic copy should be submitted in the form of un-bound 11"x17" double-sided documents.)

All deliverables shall work toward development of the Final Report.

#### 4. ANALYSIS OF SHORT TERM SOLUTIONS

- a. **Develop Peak Period Traffic Operations Model.** The Engineer shall develop a traffic operations model for the study corridor utilizing common industry software. The Engineer and the State shall agree upon and identify the traffic simulation and analysis software to be utilized for the study corridor such as VISSIM, VISTRO, and SimTraffic/Synchro. Videos of the model analysis shall be prepared for use at the second public meeting to represent existing conditions and anticipated conditions assuming implementation of recommended improvements.

The simulation model shall be developed for the weekday PM peak period. In addition, either the AM peak period or weekend peak period shall be modeled, depending on which is determined to be more critical based on traffic volume data collected for each traffic analysis segment. The model shall include the signalized cross streets and un-signalized intersections listed, as well as driveways within the analysis segment. Driveways for which turning movement counts shall be conducted shall be identified by the Engineer during field reconnaissance at the beginning of this project. Traffic volumes for driveways not counted shall be estimated based on the representative driveway counts conducted.

The traffic analysis shall result in an evaluation of various performance measures, which could include capacity and level-of-service, vehicular delay, travel time and speed, and fuel consumption. The existing conditions traffic simulation model shall be used for the traffic operations evaluation of short-term improvements developed. The results of the model shall be used to compare roadway and intersection traffic operations before and after the implementation of the recommended short-term access management measures.

While no Congestion Mitigation and Air Quality (CMAQ) funding is involved in this planning level study, air quality benefits for delay reduction may be calculated by the Metropolitan Planning Organization (MPO) for future use as a possible State Implementation Plan commitment. This shall require the MPO modeling a forecasted year using one of the years the MPO already models to minimize input needs. The models shall be utilized by the Engineer for more detailed traffic operations analyses at major intersections. This analysis shall result in an evaluation of various performance measures, which could include capacity and LOS, vehicle

delays, fuel consumption, and air emissions. Any such detailed future modeling for air quality benefits shall be conducted by the MPO, not the Engineer. The MPO modeling inputs, outputs, and applicable networks shall be made available to the Engineer.

- 1) **Technical Memorandum.** The Engineer shall provide a Technical Memorandum creating new or updating the chapters and information in the Final Report, which documents the traffic simulation model inputs and corridor attributes (e.g., termini, facilities modeled). Document existing conditions (base) and alternative(s) scenarios to be simulated, along with alternative scenario(s)' variation from the base scenario. Some variation examples include, but are not limited to, modified inputs and variable, assumptions, added component(s), along with tables, figure and graphs summarizing scenario results.
- 2) **Traffic Analysis Report.** The Engineer shall document In a Traffic Analysis Report (included in the Final Report Appendix) in detail all processes undertaken for the development and construction of the traffic simulation/analysis/operations model. These processes shall include processes detailed in the Final Report as well as any other processes undertaken for the development and analysis of the model. The processes shall include, but shall not be limited to, model calibration procedure(s), basic model assumptions, input and output data. In addition, any methods used for input and output data manipulation (e.g., seasonal adjustments) and data analysis shall be documented in this report.

b. **Identify and Define Proposed Improvements**

The Engineer shall identify and define three ranges of reasonable, context-sensitive improvements within the study area that can be implemented within a short-term [0-5 years] timeframe, an intermediate [6-10 years] timeframe, and a long-term [11+ years] timeframe. The principal difference is whether the proposed solution is entirely within the existing right-of-way such as median closures or involves negotiation with adjacent landowners such as adding turn lanes or driveway reconfigurations, cost considerations, and roadway capacity additions or influencing land use changes.

- 1) The Engineer shall review prior corridor studies, mobility data, and evaluations related to the study corridor and to identify a toolbox of potential access management treatments, including the potential of unconventional intersection treatments.
- 2) The Engineer shall prepare an initial list of context sensitive improvement concepts including, but not limited to:
  - a. Intersection Geometric Improvements (turn lanes and grade separations);

- b. Median Opening Modifications (closures and consolidations);
  - c. Access Control Modifications (driveway consolidations and closures);
  - d. Traffic Signal Modifications (timings, coordination, and emergency preemption);
  - e. Transit System Modifications (signal preemption, bus stop relocation, exclusive bus lanes, and route modifications or consolidations);
  - f. Intelligent Transportation System (ITS) Improvements (driver information systems, changeable message signs, and alternate route notification with real time traffic signal adjustments);
  - g. Travel Demand Management (TDM) Programs (carpool and vanpools, telecommuting, parking management, employer trip reduction programs, and transit incentives);
  - h. Alternative Corridor Improvements (transportation system improvements along alternative parallel corridors which would assist in reducing demand); and,
  - i. Negative Land Use Impacts.
- 3) Additional concepts may be identified via the Project Study Steering Committee and public input. The Engineer shall utilize previous mobility data, evaluations, and corridor studies including studies performed outside of the District and the State. The Engineer shall evaluate the identified improvement concepts based on the study goals, objectives, and needs developed in item c. Development of Short and Medium Term Improvement Concepts. Improvement concepts that do not suitably address the goals and objectives shall be eliminated from further consideration. Eliminated concepts shall be documented in the Final Report, where the documentation shall include reason for such elimination.

c. **Development of Short and Medium Term Improvement Concepts**

The Engineer shall review the improvement concepts identified, taking into account comments from the Project Study Steering Committee and public input. The Engineer shall prepare line sketches for each concept, showing (if appropriate) typical sections (existing and proposed), lane configurations, modal components, and profiles for changes in grade from existing conditions. Each improvement concept shall be ranked by its viability and compatibility with other improvement concepts for achieving acceptable traffic operations within the corridor.



The alternatives shall be developed to include:

- 1) Geometric Features
  - a) Typical diagrams showing modal components for each alternative, including improvements planned or recommended for parallel routes within the corridor.
  - b) Sketches of typical cross-sections appropriate for each alternative.
  - c) Roadway geometry compatible with several travel modes.
  - d) Transportation System Management (TSM) components.
- 2) Capital Costs
  - a) Preliminary construction cost estimates of proposed improvements based on State guidelines and with indication of low and high quantities and costs.
  - b) ITS, TDM and TSM.
- 3) Mobility

Each of the viable improvement concepts identified shall be evaluated from a mobility and safety standpoint. The improvement concepts shall be modeled using the traffic simulation models of the corridor segment. The following items are used only to serve as possible examples of criteria that may be used to evaluate the improvement concepts from a mobility standpoint:

  - a) Vehicle congestion delay.
  - b) Percent of increased travel time due to congestion.
  - c) Average peak hour travel speed.
  - d) Travel times from selected origins/destinations.
  - e) Peak hour level-of-service (LOS).
  - f) Accessibility enhancements to activity centers (qualitative).
  - g) Crash reduction/prevention
  - h) Impacts of alternatives on existing facilities and system effectiveness (qualitative).
  - i) Consistency with community and regional transportation plans (qualitative).
  - j) Discussion of future land use and transportation interactions that might influence and enhance the travel characteristics of the corridor in short or medium term.

- f. **Cost Effectiveness.** The Engineer shall evaluate cost-effectiveness to determine if the improvements cause sufficient user benefits to justify the

investment. The Engineer shall evaluate cost-effectiveness by determining the benefits (dollar-value) associated with the reduction in vehicle delay due to a short-term improvement and comparing the benefit to the cost of implementing the improvement. Benefits shall be determined using the results of the peak hour model and converting the hourly delay values to estimated daily and annual delays, which shall then be multiplied by an average cost per hour of delay to achieve annual benefits (dollar-value).

- g. **Aerial Layout.** The Engineer shall prepare and provide an aerial layout with short-, medium-, and long-range improvements depicted. The aerial layout shall include land use, street names, key adjacent businesses, existing and proposed typical sections, and line diagram improvements by agency and timeframe, which includes diagrams of existing intersection and recommended intersection improvements. The aerial layout shall be broken at logical locations to facilitate ease of reading and shall be of sufficient scale so as to clearly see proposed improvements and shall contain a north arrow and scale. The Engineer shall provide a small map depicting corridor location.

The Engineer shall provide a legend identifying improvements in the form of color coded symbols depicting responsible agency and implementation timeframe (e.g., short-, medium-, or long-range) on the aerial layout.

## DELIVERABLES

The Engineer shall provide the following:

- Peak Period Traffic Operations Model
- Technical Memo documenting the traffic simulation model
- Traffic Analysis Report (stand-alone and included in the Final Report Appendix)
- Initial List of Context Sensitive Improvement Concepts including additional concepts identified by the Project Study Steering Committee and public input, and eliminated concepts
- Additional concepts identified by the Project Study Steering Committee and public input, and eliminated concepts
- Chart or table describing the short and medium term recommendations including descriptions, detailed cost estimate(s) and jurisdiction. Cost Estimate(s) shall not include utilities or drainage costs. (One reproducible set and 1 electronic word or excel document.).
- Additional chapter(s) and information in the Final Report including: a single table depicting implementation costs by improvement, responsible agency and timeframe (e.g., short-, medium-, or long-range), and list or table of eliminated concepts).
- Aerial layout with short-, medium-, and long-range improvements depicted.

## **5. LONG TERM ACCESS MANAGEMENT STRATEGIES**

### **a. Identify Access Management Action Strategies**

The Engineer shall identify access management policy issues that, if adopted, would facilitate and enhance future development and land use in the corridor. Potential policy issues considered, but not limited to, are enhanced safety, opportunities for alternative or multimodal modes, land use practices. For each issue identified, the Engineer shall provide examples of these access management ordinances, rules, land use applications, or practices currently in use in other jurisdictions, highlighting any found to exist already in Texas or elsewhere.

At the request of the Project Study Steering Committee, the Engineer shall propose strategies and timing for implementing proposed regulations, ordinances and land use practices. Such strategies shall include, but not be limited to, example ordinances, adoption procedures, contacts, redevelopment options.

The Engineer shall discuss with the State of future land use and transportation interactions that might influence and enhance the travel characteristics of the corridor.

## **DELIVERABLES**

The Engineer shall provide the following:

- Charts or tables describing the access management issue, its political entity application, and type of action required (practice, ordinance, law). (One reproducible set per entity)
- Examples of each rule, ordinance, practice, law for each access management issue (One reproducible set per entity)
- Strategies and Timing (Long-Term Improvement) Table for implementing proposed regulations, ordinances and land use practices
- Notes of future land use and transportation interactions that might influence and enhance the travel characteristics of the corridor.

## **6. FINAL REPORT**

The Engineer shall prepare a Final Report (in 11"x17" color, double-sided, landscape format) reflecting the recommended improvement concepts and enhancements. The Final Report shall provide a description of the study effort associated with identification, definition, development, and refinement of improvement concepts. The Final Report shall include typical improvement layouts and shall include an existing typical section and a proposed typical section in stick diagram form. The Final Report shall include a discussion of any concepts eliminated for not addressing the study needs, goals and objectives. The methodology and evaluation criteria shall be explained. A section documenting the traffic analysis including the development of the traffic simulation models for the short-term solutions analysis shall be included.

The Final Report shall include a summary of recommended projects along with project descriptions, detailed cost estimates, benefits, and potential funding sources for each of the political entities. The list of recommended projects shall be prioritized in cooperation with the Project Study Steering Committee. The Final Report shall include a summary of recommended long term access management action strategies for each of the political entities in the corridor. The Engineer shall prepare, sign, and seal a Traffic Analysis Report supporting the findings in the Final Report. The Traffic Analysis Report shall be a standalone report that shall be incorporated into the Final Report as an Appendix whose main focus is the development and analysis of the traffic simulation/analysis/operations model(s) which include the simulation of existing conditions (base) and alternative(s) scenarios and the detailing of all processes undertaken for the development, analysis, and support of such model(s).

The Final Report chapters shall include: Introduction, Existing Conditions, Public Involvement, Access Management Tools, Traffic Analysis, Recommended Improvements and Implementation Strategies, and Future Corridor Needs and Policies. All other information shall be included in an Appendix including, but not limited to: roadway inventory, crash data, counts, signal inventory, bus routes and stops, pedestrian and bicycle facilities, traffic analysis and simulation, and detailed cost estimate(s) (using current State Average Low Bid Pricing. The Final Report shall reference the date of the bid prices.)

The Engineer shall provide, in both the Executive Summary and the Final Report, a detailed, but concise write up and graphical representation to eliminate verbosity. The Engineer shall provide base maps at a minimum of 1:200 scale showing the location, layout, and typical sections for each concept considered. Layouts shall include information such as land use, bridge limits, pedestrian and bicycle facilities, transit facilities, and location of any drainage and outfall ditches. Improvements shown on these exhibits shall be identified as short-term, medium-term, or long-term. Exhibits shall include a vicinity map outlining community and public services. Exhibits shall not include potential utility conflicts, drainage impacts, or driveway diagrammatic detail.

The Executive Summary shall include a brief introduction, goals, recommendations, anticipated benefits, project location map, study partners, and the estimated costs breakdown by type, implementation timeframe, and the responsible agencies.

The Engineer shall include the Traffic Analysis Report, a standalone report (separate from the Final Report, but also included as an Appendix in the Final Report), that focuses and documents all processes undertaken for the development and construction of the traffic simulation/analysis/operations model(s). These processes shall include those detailed in the Final Report as well as any other processes undertaken for the development and analysis of the model. The processes shall include, but are should not be limited to, model calibration procedure(s), basic model assumptions, input and output data. In addition, any methods used for input and output data manipulation (e.g., seasonal adjustments) and data analysis shall be documented in this report.

## DELIVERABLES

The Engineer shall provide the following:

- Final Report (11"x17", color two-sided, landscape format with **Twin Loop Wire Binding**), including maps or other drawings and exhibits of each concept recommended. (20 draft color copies, 20 bound final color copies, appendices including all files in their original format shall be on a CD/DVD attached to the Final Report, electronic copy of the entire Final Report in PDF format).
- Executive Summary (20 color draft copies, 50 final copies, electronic copy in PDF format). The executive summary shall be an 11"x17" folded document (One reproducible copy, electronic files in Microstation format).
- One double-sided unbound copy and 25 CD/DVD copies of the final report (PDF format)
- Five DVDs of the aerial photography and planimetrics used for the study, including all overlays, and land use information.
- Traffic simulation datasets (existing conditions, recommended and short-term improvement alternatives, and any other relevant alternatives). Input values and summary of outputs and results should be clearly documented for each dataset. Important assumptions should be clearly stated. (Reproducible copy of electronic files)

## **FUNCTION CODE 120(120) – SOCIAL/ECON/ENVIRON STUDIES**

### **A. Public and Agency Involvement**

The Engineer shall perform public involvement activities in accordance with TAC, Title 43, Part 1, Chapter 2 and 36 CFR 800.2.

#### **1. PUBLIC INVOLVEMENT PLAN**

The Engineer shall prepare a Public Involvement Plan (PIP) to support the project study. This plan shall identify the responsibilities of the Engineer, the State, and any other agency and public entity participation as well as determine a preliminary public involvement and stakeholder meeting schedule. The plan shall specify all activities to be performed and alternatives to be discussed during public involvement activities. Public involvement activities shall be carried out in compliance with Executive Order (EO) 13166 and EO 12898. The plan shall discuss outreach strategies for both the general public and targeted strategies for Environmental Justice and Limited English Proficiency populations. The PIP shall be included in the Project Management Plan (PMP).

## DELIVERABLES

The Engineer shall provide the following:

- Public Involvement Plan to be included in the Project Management Plan

## 2. PROJECT STUDY STEERING COMMITTEE

A Steering Committee composed of representatives determined by the State, shall be established to guide the technical development of the study. The Project Study Steering Committee shall meet with the Engineer and the State Project Manager as determined in the study schedule to receive and assess reports on project progress, provide comments on the schedule, coordinate with their respective agencies, and provide technical oversight of major activities associated with the study. One Project Study Steering Committee meeting shall be held before each public meeting in order for the committee to review and make comments on the proposed materials to be presented to the public. The meetings shall be held in person.

Additional topics for this group shall include:

- a. Establishment of the study goals, objectives, and evaluation criteria;
- b. Existing and projected corridor conditions;
- c. Identification of a reasonable range of alternatives;
- d. Development of short-term improvement concepts; and,
- e. Feasibility and availability of funding for medium or long-range improvement concepts.

## DELIVERABLES

The Engineer shall provide the following:

- Project Study Steering Committee notes and comments.

## 3. PUBLIC MEETINGS

The Engineer shall plan, coordinate, execute, and document public meetings at a mutually agreed upon location within the corridor to relay the purpose and process of the project study, to present data collection, and introduce and solicit feedback on the proposed recommendations of the study. The Engineer shall develop the meeting notice and advertise the public meetings. The Engineer shall send meeting notices to all adjacent properties within the study area.

Public meeting publicity includes development of a meeting notice in English, Spanish, and any other language deemed representative of the area's population that captures the attention of the public. The Engineer shall develop and distribute an electronic notice for local chambers, municipalities, and others, as appropriate, to distribute electronically. The Engineer shall distribute all official meeting notices and conduct the meetings. The Engineer shall place two legal notice advertisements in the legal section of the most widely distributed newspaper in the corridor approximately 30 days prior to the meeting and again 10 days prior to each set of meetings. The legal notice shall be in English, Spanish, and any other language as identified in the work authorization.

The Engineer shall prepare a public meeting sign in sheet for each meeting, a questionnaire and comment form (150 forms per meeting) for the public to

provide meaningful feedback, and appropriate exhibits to convey the project's purpose, goals, and other technical materials for distribution and display at the public meetings. The Engineer shall prepare directional signage for the traveling public to guide them to the public meeting location (a minimum of four signs) as well as appropriate directional signage in the building. Exhibits for the first meeting shall include existing conditions, mobility and safety issues, project goals and objectives, and the project schedule. Exhibits for the second meeting shall include the previous exhibits plus layouts of the proposed transportation improvement recommendations in a 1:200 scale or of a scale so that the public can clearly see driveways. The Engineer shall provide personnel to conduct and staff the public meetings and take photographic documentation of the meetings.

The Engineer shall compile comments received at the meetings and produce documentation of the comments from each meeting. The public meeting report shall include sign in sheets, distribution list, questionnaire and comment forms, notification materials and documentation, exhibits, and a summary report of the findings from each set of public meetings.

The Engineer shall prepare a Technical Memorandum summarizing work performed to date, which shall serve as initial chapters in the Final Report. Three chapters including Chapter 1: Introduction; Chapter 2: Analysis of Existing Conditions, and Chapter 3: Public Involvement, shall be provided as deliverables following the first public meeting. It is noted that future information shall be added to Chapter 3 as the project progresses.

#### DELIVERABLES

The Engineer shall provide the following:

- Public Meeting Report including photographic documentation (up to 20 paper copies and one (1) electronic copy)
- Technical Memorandum summarizing work performed to date, which will serve as initial chapters in the Final Report. One (1) 11X17 inch double sided paper copy and one (1) electronic copy shall be submitted to the State.

All deliverables shall work toward development of the Final Report.

#### 4. MAILING LIST

The Engineer shall collect existing mailing lists composed of adjacent landowners as derived from the appraisal district as well as mailing lists from other immediately available sources such as chambers of commerce and other business organizations, when possible. In addition, the Engineer shall collect and include other interested parties in the mailing list including, but not limited to, county personnel, municipal personnel, emergency services, representatives from local schools and the independent school districts, homeowners associations, and municipal utility districts.

The Engineer shall compile the list and, check for duplicates, and verify elected official information is up-to-date. The Engineer may print multiple sets of mailing

labels for each public meeting for use in advertising. The Engineer shall mail out up to 2,500 notices per meeting using regular mail. A compiled list of all names and addresses of persons notified of the public meetings shall be included in the public meeting documentation deliverable identified.

The Engineer shall provide the State the mailing list broken down by last name, first name, entity, address, city, state, zip, and e-mail address. The e-mail address shall be obtained when readily available, such as on the Internet for elected officials, or provided by an individual requesting to be notified of future study activities.

## DELIVERABLES

The Engineer shall provide the following:

- Mailing List (Microsoft Excel spreadsheet) One (1) 11X17 inch single sided paper copy and one (1) electronic copy

## 5. STAKEHOLDER MEETINGS

The Engineer shall provide support personnel and exhibits for meetings with Stakeholders. The Stakeholders will be determined by the State in cooperation with the Engineer. Exhibits for the stakeholder meetings can be the same as those used for public meetings. The Engineer shall be responsible for handling the logistics of these meetings and providing minutes of the meeting and a list of attendees.

## DELIVERABLES

The Engineer shall provide the following:

- Stakeholder meeting minutes for each stakeholder meeting (One paper copy and one electronic copy)
- Stakeholder meeting attendees list for each stakeholder meeting (One paper copy and one electronic copy)

## 6. PROJECT WEBSITE

The State will develop and maintain a website that will be made available in advance of the first public meeting for this project. The Engineer shall provide project information for the project website to the State including documents related to project background, study area limits, study objectives, project photos, study area maps, material presented at public meetings, and contact information for requesting additional information. The project website will be updated with the documents and other information provided by the Engineer to the State after each set of public meetings and the final report in PDF format provided by the Engineer will be posted by the State to give the general public access to the document.

## DELIVERABLES

The Engineer shall provide the following:

- Project Study and other related documents in PDF or similar format transmitted electronically or on CD to State staff.



**FUNCTION CODE 145 (145, 164) - MANAGING CONTRACTED/DONATED PE****A. Project Management and Administration****1. PROJECT MANAGEMENT AND COORDINATION.**

The Engineer shall attend one in-progress project meeting for each specific signal system to be coordinated. The Engineer shall review the existing phasing and timing sheets, the clearance intervals to be used and the pedestrian walk and don't walk times for all of the intersections in the specific project.

The Engineer, in association with the State's Project Manager, shall be responsible for directing and coordinating all activities associated with the project to comply with State policies and procedures, and to deliver that work on time.

The Engineer shall coordinate all subconsultant activity to include quality of and consistency of plans and administration of the invoices and monthly progress reports. The Engineer shall coordinate with necessary local entities.

**2. PROJECT MANAGEMENT AND ADMINISTRATION**

The Engineer shall:

- a. Prepare monthly written progress reports for each project that identify:
  - 1) Activities, ongoing or completed, during the reporting period;
  - 2) Activities planned for the following month;
  - 3) Problems encountered and actions to remedy them;
  - 4) Foreseeable problems and actions to remedy/avoid them.
  - 5) Project status report, detailing milestones completed and a tabulation of percent complete by task, management schedule showing study progress, supporting documentation and,
  - 6) Minutes of meetings, including list of attendees and affiliation
- b. Develop and maintain a detailed project schedule to track project conformance to Exhibit C, Work Schedule, for each work authorization. The schedule submittals shall be hard copy and electronic format.
- c. Meet on a scheduled basis with the State to review project progress.
- d. Prepare, distribute, and file both written and electronic correspondence.
- e. Prepare and distribute meeting minutes.
- f. Document phone calls and conference calls as required during the project to coordinate the work for various team members.

**3. PROJECT MANAGEMENT PLAN**

A Project Management Plan (PMP) shall be prepared by the Engineer to identify work organization, responsibilities, and coordination, and communication procedures. The Engineer shall incorporate: services to be provided by the State, services to be provided by the Engineer, and the project schedule with

target dates for milestones into the PMP. The PMP shall contain the Public Involvement Plan (PIP), meetings and deliverable dates, and contact information for study team members.

## DELIVERABLES

The Engineer shall provide the following:

- Invoices
- Progress Reports (monthly)
- Project Schedule (1 complete electronic document)
- Correspondence
- Meeting Minutes
- Logs of phone calls and conference calls
- PMP document (1 complete electronic document)

## **FUNCTION CODE 160 (150, 160, 161, 162, 163) – ROADWAY DESIGN**

### **A. Minor Roadway Design**

#### **1. MINOR ROADWAY ELEMENTS**

The Engineer shall perform field work and analysis necessary to design the minor roadway elements for designated locations and sections of roadways.

The Engineer shall:

- a. Perform field work and analysis necessary to design the minor roadway elements at the designated location(s).
- b. Prepare layouts for element design in accordance with the applicable requirements of the State's Specifications and Manuals (latest revision) as provided by the State and available on the State's website. The design shall be in accordance to the State's Roadway Design Manual and the American Association of State Highway and Transportation Officials (AASHTO) Green Book and other applicable manuals.
- c. The Engineer shall prepare and incorporate into the design pedestrian and bicycle accommodations facilities. All pedestrian and bicycle accommodation facilities must be designed in accordance with the latest *Americans with Disabilities Act Accessibility Guidelines (ADAAG)*, the *Texas Accessibility Standards (TAS)*, and the *AASHTO Guide for the Development of Bicycle Facilities*.
- d. Prepare Plans, Specifications, and Estimates (PS&E) Package according to current state specifications.
- e. Provide copies of design layouts.
- f. Provide copies of the PS&E Package.
- g. Provide electronic files of the design and PS&E Package (design & as built).

**B. Drainage Report****1. DRAINAGE ELEMENTS**

The Engineer shall perform field work and analysis necessary to design the drainage elements for designated locations and sections of roadways.

The Engineer shall:

- a. Perform field work and analysis necessary to design the drainage elements for at the designated location.
- b. Provide relevant sheets for inclusion within the PS&E package.
- c. Provide electronic files of the design and PS&E Package.

**C. Signing, Pavement Markings, Signalization (Permanent)****1. TRAFFIC SIGNAL DESIGN**

The Engineer shall perform field work and analysis necessary to design traffic signal plans for designated locations and sections of roadways.

The Engineer shall:

- a. Perform field work that shall include, but not be limited to, taking measurements, locating utilities, locating ROW, locating existing signal equipment, identifying existing signal phasing, identifying existing conditions, identifying railroad crossings, identifying utility easements (if present), and taking digital photos of the locations.
- b. Prepare layouts for traffic signal, pavement revision, pedestrian element, vehicle detection, communication, pavement marking, and Americans with Disabilities Act (ADA) element design according to current State specifications, district format, and approved city preferences.
- c. Prepare PS&E Package in accordance with the applicable requirements of the State's Specifications and Manuals (latest revision) as provided by the State and available on the State's website.
- d. If applicable, address railroad preemption in the signal design. The Engineer shall coordinate with appropriate railroad company.
- e. Provide copies of the traffic signal design layouts.
- f. Contact the local utility company to confirm electrical power for signal equipment and identify conflicts with overhead and underground utility lines. Obtain meter address from City. Identify utility company, contact person, and phone number on plans.
- g. Perform revisions to the plans due to any comments received from the State and City.
- h. Verify that proposed traffic signal work meets the requirements of the National Electrical Code and TMUTCD.

- i. Provide copies of the PS&E Package.
- j. Provide electronic files of the design and PS&E Package.

## 2. SIGNING AND PAVEMENT MARKINGS

The Engineer shall:

- a. Perform field work and analysis necessary to design signing, pavement marking and channelization plans at the designated location and sections of roadways.
- b. Prepare layouts and PS&E Package for pavement revision, signs, pavement marking, and channelization in accordance with the applicable requirements of the State's Specifications and Manuals (latest revision) as provided by the State and available on the State's website. The designs shall be in accordance with the latest edition of the *Texas Manual on Uniform Traffic Control Devices*.
- c. Provide copies of the signing, pavement marking, and channelization design layouts.
- d. Provide copies of the PS&E Package.
- e. Provide electronic files of the design and PS&E Package.

## D. Miscellaneous (Roadway)

### 1. ILLUMINATION DESIGN

The Engineer shall perform field work and analysis necessary to design illumination plans for designated locations and /or sections of roadways.

The Engineer shall:

- a. Perform field work that may include but not be limited to taking measurements, locating utilities, locating existing illumination equipment, identifying existing conditions, and taking digital photos of the locations.
- b. Prepare layouts for safety and/or continuous illumination design according to current State specifications, district format, and approved city preferences.
- c. For high mast lighting, prepare photometric data layout and submit for review and approval before detail design.
- d. For high mast lighting, submit Federal Aviation Administration (FAA) study request and obtain FAA determination for each pole.
- e. Prepare PS&E Package in accordance with the applicable requirements of the State's Specifications and Manuals (latest revision) as provided by the State and available on the State's website.
- f. Provide copies of the illumination design layouts.

- g. Contact the local utility company to confirm electrical power for illumination equipment and identify conflicts with overhead and underground utility lines. Obtain meter address from City. Identify utility company, contact person, and phone number on plans.
- h. Perform revisions to the plans due to any comments received from the State and the City.
- i. Verify that proposed illumination work meets the requirements of the National Electrical Code and the TxDOT Highway Illumination Manual.
- j. Provide copies of the PS&E Package.
- k. Provide electronic files of the design and PS&E Package.

**E. Design Surveys and Construction Surveys**

All surveys must meet or exceed the standards set in the Professional Land Surveying Practices Act, the General Rules of Procedures and Practices promulgated by the Texas Board of Professional Land Surveying (TBPLS), and the Texas Department of Transportation (TxDOT) TxDOT Survey Manual, latest edition, and shall be accomplished in an organized and professional manner, subject to the approval of the State.

The Engineer's Surveyor shall use the North American Datum of 1983 (NAD83), Texas Coordinate System of 1983 (State Plane Coordinates), applicable to the zone or zones in which the work is performed, with values in U.S. Survey Feet, as the basis for all horizontal coordinates derived, unless otherwise directed by the State. The Engineer's Surveyor shall use the datum adjustment currently in use by the State unless otherwise specified by the State.

Project or surface coordinates must be calculated by applying a Combined Adjustment Factor (CAF) to State Plane Coordinate values. The State may direct the Engineer's Surveyor to use a specific CAF for a project to: a) match existing or ongoing projects, b) conform to a county-wide surface adjustment factor, or c) be calculated specifically for the project area.

Elevations shall be based on the North American Vertical Datum 88 (NAVD88), unless otherwise specified by the State.

All Global Positioning System (GPS) work, whether primary control surveys or other, must meet or exceed the current TxDOT Survey Manual, latest edition, to the order of accuracy specified in the categories listed below or in a work authorization. If the order of accuracy is not specified in this Contract or in a work authorization, the work must meet or exceed the order of accuracy specified in the publications listed in this paragraph.

All conventional horizontal and vertical control surveys must meet or exceed the TxDOT Survey Manual, latest edition, and the Texas Society of Professional Surveyors (TSPS) Manual of Practice for Land Surveying in the State of Texas, latest edition, to the order of accuracy specified, and in the categories listed below or in a work authorization. If the order of accuracy is not specified in this

Contract or in a work authorization, the work must meet or exceed the order of accuracy specified in the publications listed in this paragraph.

In order to ensure accuracy and accountability of the services provided under this Contract, the State may require the Engineer's Surveyor to certify work performed under this Contract as true and correct according to FGCS standards, the TxDOT Survey Manual, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

The Engineer's Surveyor shall provide temporary signing and traffic control in and around survey operations; the signing and traffic control shall comply with provisions of the Texas Manual of Uniform Traffic Control Devices. All signs, flags and safety equipment shall be provided by the Engineer's Surveyor. The Engineer's Surveyor shall notify the Public Information Office of the District where the work is to be performed at least five working days in advance of any lane closures.

The Engineer's Surveyor shall provide all personnel, equipment, and materials necessary for the performance of the activities required by this agreement or by any work authorization.

The Engineer's Surveyor shall provide Survey Data (original and processed) to the State on a compact disk or other approved medium. The Survey Data must be fully compatible with the State's computer system and with programs in use by the State at the time of the submission, without further modification or conversion. The current program formats used by the State are: Microsoft Office Word 2010 for word processing, MicroStation V8i and GEOPAK Survey for graphics applications and ArcGIS for its Geo-Database platform. Data collection programs must be compatible with the current import formats allowed by GEOPAK Survey and be attributed with current Feature Codes. These programs may be replaced at the discretion of the State.

Variations from these software applications or other requirements listed above shall only be allowed if requested in writing by the Engineer's Surveyor and approved by the State.

The Engineer's Surveyor shall perform Quality Control/Quality Assurance on all procedures, field surveys, data, and products prior to delivery to the State. The State may also require the Engineer's Surveyor to review the survey work performed by other surveyors. If, at any time, during the course of reviewing a submittal of any item it becomes apparent to the State that the submittal contains errors, omissions, and inconsistencies, the State may cease its review and return the submittal to the Engineer's Surveyor immediately for appropriate action by the Engineer's Surveyor. A submittal returned to the Engineer's Surveyor for this reason is not a submittal for purposes of the submission schedule.

The Standards for services that are not boundary-related but that relate to surveying for engineering projects may be determined by the construction specifications, design specifications, or as specified by the State.

Design Surveys and Construction Surveys shall be performed under the supervision of a Registered Professional Land Surveyor (RPLS) currently registered with the Texas Board of Professional Land Surveying.

Design Surveys and Construction Surveys include performance of surveys associated with the gathering of survey data for topography, cross-sections, and other related work in order to design a project, or during layout and staking of projects for construction.

## 1. PURPOSE

The purpose of a design survey is to provide field data in support of transportation systems design.

The purpose of a construction survey is to provide field data in support of highway construction.

## 2. DEFINITIONS

A design survey is defined as the combined performance of research, field work, analysis, computation, and documentation necessary to provide detailed topographic (3-dimensional) mapping of a project site. A design survey may include, but need not be limited to locating existing right-of-way, cross-sections or data to create cross-sections and Digital Terrain Models (DTM), horizontal and vertical location of utilities and improvements, detailing of bridges and other structures, review of right-of-way maps, establishing control points, etc.

A construction survey is defined as the combined performance of reconnaissance, field work, analysis, computation, and documentation necessary to provide the horizontal and vertical position of specific ground points to be used by the construction contractor for determining lines and grades.

## 3. TASKS TO BE COMPLETED

### a. Design Surveys

The State will request design surveys on an as needed basis. The Engineer's Surveyor shall perform tasks including, but not limited to the following:

- 1) Obtain or collect data to create cross-sections and digital terrain models.
- 2) Locate existing utilities.
- 3) Locate topographical features and existing improvements.
- 4) Provide details of existing bridge structures.
- 5) Provide details of existing drainage features, (e.g., culverts, manholes, etc.).
- 6) Locate wetlands.

- 7) Establish additional and verify existing control points. Horizontal and Vertical control ties must be made and tabulated, to other control points in the vicinity, which were established by other sources such as, the National Geodetic Survey (NGS), and the Federal Emergency Management Agency (FEMA), and any other local entities as directed by the State.
- 8) Locate existing right-of-ways.
- 9) Review right-of-way maps.
- 10) Locate boreholes.
- 11) Perform hydrographic surveys.
- 12) Update existing control data and prepare survey control data sheets, as directed by the State for inclusion into a construction plan set.

The Engineer's Surveyor shall also prepare a *Survey Control Index Sheet* and a *Horizontal and Vertical Control Sheet(s)*, signed, sealed and dated by the professional engineer in direct responsible charge of the surveying and the responsible RPLS for insertion into the plan set. The *Survey Control Index Sheet* shows an overall view of the project control and the relationship or primary monumentation and control used in the preparation of the project; whereas, the *Horizontal and Vertical Control sheet(s)* identifies the primary survey control and the survey control monumentation used in the preparation of the project. Both the *Survey Control Index Sheet* and the *Horizontal and Vertical Control Sheet(s)* must be used in conjunction with each other as a set. The State's forms for these sheets can be downloaded from the State's website.

The following information shall be shown on the *Survey Control Index Sheet*:

- Overall view of the project and primary control monuments set for control of the project
- Identification of the control points
- Baseline or centerline
- Graphic (Bar) Scale
- North Arrow
- Placement of note "*The survey control information has been accepted and incorporated into this PS&E*" which shall be signed, sealed and dated by a Texas Professional Engineer employed by the State
- RPLS signature, seal, and date
- The State's title block containing District Name, County, Highway, and CSJ



The following information shall be shown on all *Horizontal and Vertical Control Sheets*:

- Location for each control point, showing baseline or centerline alignment and North arrow.
- Station and offset (with respect to the baseline or centerline alignments) of each identified control point.
- Basis of Datum for horizontal control (base control monument/benchmark name, number, datum).
- Basis of Datum for the vertical control (base control monument, benchmark name, number, datum).
- Date of current adjustment of the datum.
- Monumentation set for Control (Description, District name/number and Location ties).
- Surface Adjustment Factor and unit of measurement.
- Coordinates (State Plan Coordinates [SPC] Zone and surface or grid).
- Relevant metadata.
- Graphic (Bar) Scale.
- Placement of note "*The survey control information has been accepted and incorporated into this PS&E*" which shall be signed, sealed and dated by a Texas Professional Engineer employed by the State.
- RPLS signature, seal and date.
- The State's title block containing District Name, County, Highway, and CSJ.

b. Construction Surveys

The State will request construction surveys on an as needed basis. The Engineer's Surveyor shall perform tasks including, but not limited to the following:

- 1) Stake existing or proposed right-of-ways.
- 2) Stake existing or proposed baseline/centerline.
- 3) Stake proposed bridge structures.
- 4) Stake proposed drainage structures (e.g., manholes, culverts, etc.).
- 5) Set grade stakes.
- 6) Recover and check existing control points.
- 7) Establish additional control points.
- 8) Check elevations and locations of structures.
- 9) Determine and resolve conflicts associated with survey data.

#### 4. TECHNICAL REQUIREMENTS

- a. Design surveys and construction surveys must be performed under the supervision of a RPLS currently registered with the TBPLS.
- b. Horizontal ground control used for design surveys and construction surveys, furnished to the Engineer's Surveyor by the State or based on acceptable methods conducted by the Engineer's Surveyor, must meet the standards of accuracy required by the State.

Reference may be made to standards of accuracy for horizontal control traverses, as described in the TxDOT Survey Manual, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

- c. Vertical ground control used for design surveys and construction surveys, furnished to the Surveyor by the State or based on acceptable methods conducted by the Surveyor, must meet the standards of accuracy required by the State.

Reference may be made to standards of accuracy for vertical control traverses, as described in the TxDOT Survey Manual, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

- d. Side shots or short traverse procedures used to determine horizontal and vertical locations must meet the following criteria:
  - 1) Side shots or short traverses must begin and end on horizontal and vertical ground control as described above.
  - 2) Standards, procedures, and equipment (may be GPS Equipment, LiDAR, Total Stations, etc.) used must be such that horizontal locations relative to the control may be reported within the following limits:
    - a) Bridges and other roadway structures: less than 0.1 of one foot.
    - b) Utilities and improvements: less than 0.2 of one foot.
    - c) Cross-sections and profiles: less than 1 foot.
    - d) Bore holes: less than 3 feet.
  - 3) Standards, procedures, and equipment (may be GPS Equipment, LiDAR, Total Stations, etc.) used must be such that vertical locations relative to the control may be reported within the following limits:
    - a) Bridges and other roadway structures: less than 0.02 of one foot.
    - b) Utilities and improvements: less than 0.1 of one foot.
    - c) Cross-sections and profiles: less than 0.2 of one foot.
    - d) Bore holes: less than 0.5 of one foot.

## 5. AUTOMATION REQUIREMENTS

- a. Planimetric design files (DGN) must be fully compatible with the State's *MicroStation V8i* graphics program without further modification or conversion.
- b. Electronically collected and processed field survey data files must be fully compatible with the State's computer systems without further modification or conversion. All files must incorporate only those feature codes currently being used by the State.
- c. DTM must be fully compatible with the State's *GEOPAK* system without further modification or conversion. All DTM must be fully edited and rectified to provide a complete digital terrain model with all necessary break lines.

## DELIVERABLES

The deliverables to be provided by the Engineer for design surveys and construction surveys shall be any combination of the following:

- Digital Terrain Models (DTM) and the Triangular Irregular Network (TIN) files in a format acceptable by the State.
- Maps, plans, or sketches prepared by the Surveyor showing the results of field surveys.
- Computer printouts or other tabulations summarizing the results of field surveys.
- Digital files or media acceptable by the State containing field survey data (ASCII Data files).
- Maps, plats, plans, sketches, or other documents acquired from utility companies, private corporations, or other public agencies, the contents of which are relevant to the survey.
- Field survey notes, as electronic and hard copies.
- An 8 ½ inch by 11 inch survey control data sheet for each control point which must include, but need not be limited to, a location sketch, a physical description of the point including a minimum of two reference ties, surface coordinates, a surface adjustment factor, elevation, and the horizontal and vertical datums used. A pre-formatted survey control data sheet form in MicrosoftOffice Word 2010 format will be provided by the State.
- A digital and hard copy of all computer printouts of horizontal and vertical conventional traverses, GPS analysis and results, and survey control data sheets.
- All GEOPAK GPK files.
- Survey reports in a format requested by the State.

**FUNCTION CODE 160 (165) TRAFFIC MANAGEMENT SYSTEMS****A. Intelligent Transportation System (ITS) Analysis and Project Design****1. PROJECT COORDINATION**

The Engineer shall coordinate issues and communications with State's internal resource areas through the State's Project Manager. The State will communicate the resolution of issues and provide the Engineer direction through the State's Project Manager

**2. ITS ANALYSIS (CONCEPT OF OPERATIONS)**

The Engineer shall perform an analysis to identify ITS applications to mitigate transportation problems, develop short and long term ITS implementation plans, and assess the impact of ITS projects on the transportation system. ITS applications shall focus primarily on traffic congestion reduction, motorist information and incident management operations, and may include traffic signal operations, transit and other appropriate and feasible applications.

The Engineer shall prepare an ITS Report that documents the analysis and recommendation.

The Engineer shall perform the following to complete the ITS analysis:

- a. **Concept Meeting.** The Engineer shall meet with the STATE's Project Manager to acquire an understanding of and to evaluate project needs and background. The Engineer shall interview the STATE'S Project Manager to ensure full understand the needs for future roadway network expansion and upcoming construction projects.
- b. **Document Review.** The Engineer shall review the District's existing ITS system and planning documents.
- c. **Data Review.** The Engineer shall review existing traffic data provided by the STATE.
- d. **Stakeholder Identification and Coordination.** The Engineer shall identify and prepare a list of key ITS stakeholders, which may include State and local transportation operations and maintenance staff, incident management responders, such as fire, police, emergency medical, and towing services. Once approved by the State, the Engineer shall contact key stakeholders to identify concerns, issues, and involvement with a proposed ITS application. The Engineer shall consolidate and document the concerns, issues, and suggestions from the stakeholders, for inclusion in the report.
- e. **Strategies and Recommendations.** The Engineer shall develop a recommendation for short term and long term ITS strategies, including recommended applications. The recommendation shall include the identification of ITS technologies necessary to meet the needs of the project and integration with the existing ITS network and infrastructure.

Considerations shall include any key limiting factors, such as the roadway network, right-of-way concerns, connectivity or power issues, ongoing and future constructions and cost. The Engineer shall include a discussion of assumptions, the pros and cons, projected impact to the system, along with estimated costs for implementation (such as costs to implement new elements, upgrades to the existing system, costs of maintenance, as well as for staged implementation).

- f. **Written ITS Report.** The Engineer shall submit a written report in to the State which explains the needs and potential solutions for the project. The report shall clearly explain the information needed by the traveling public and ways to meet those needs. The State will review the report and provide comments back to the Engineer.

### 3. PRELIMINARY DESIGN

The Engineer shall perform the following to complete the preliminary design:

- a. The Engineer shall prepare a layout with proposed ITS equipment for the applicable roadway network identified in the CONCEPT OF OPERATIONS task. For each layout, the Engineer shall develop an estimate of equipment and installation cost. The layout and estimate shall complement the report from the CONCEPT OF OPERATIONS task. If multiple solutions are available, the Engineer shall make a recommendation as to the preferred solution with an applicable explanation. Applicable explanations shall include: low cost solution, solution with minimal maintenance, solution with longest expected life, etc.
- b. The Engineer shall prepare a written report, with applicable drawings and tables inserted into the document. The State will review the report and provide direction to the ENGINEER on how to proceed with a design.

### 4. FIELD VISITS AND VERIFICATION

The Engineer shall perform the following:

- a. The Engineer shall visit field locations of proposed field devices, existing communication hubs and associated relevant field equipment and traffic management centers as necessary. In these visits, the Engineer shall determine if any proposed locations and devices are not feasible. Sight obstructions, limited right-of-way, lack of available power, existing ITS infrastructure, difficulty for future maintenance or expansion, and connectivity problems are examples of issues that may be encountered. The Engineer shall document field conditions with pictures, GPS coordinates, and any necessary video which would further explain any difficulties encountered.
- b. The Engineer shall determine finalized location of all devices, including networking equipment. For radio connected devices, the Engineer shall verify pole size and signal strength on proposed locations via a wireless study including interference analysis. The Engineer shall identify decibel

(dB) loss for antennas at the proposed pole heights. For devices connected thru a cellular network, the Engineer shall verify signal strength for common providers in the area. For all other cable connected devices, the Engineer shall determine feasible connectivity pathways. For example, for devices in a fiber optic network, the Engineer shall determine what devices and fiber strands shall be needed for communication. The Engineer shall develop a loss budget analysis for fiber optic cable plant.

- c. The Engineer shall submit a written report detailing efforts from the field visit and wireless study. The report shall include any necessary pictures and diagrams that further demonstrate the Engineer's conclusions. The State will provide comments on the report for any recommended design changes.

## 5. ITS FINAL DESIGN

The Engineer shall design and provide details as a part of the State's Intelligent Transportation System to be managed from locations to be determined. The design elements to be included are:

- a. Conduit,
- b. Cabling,
- c. Dynamic message signs,
- d. Closed-Circuit Television (CCTV) cameras,
- e. Communications Network Hubs
- f. Traffic Sensor Systems.

The Engineer shall develop roadway-based layout sheets depicting the physical location of all ITS devices and supporting equipment. The Engineer shall prepare the design and details including, but not limited to, conduit and cable, support structures and foundations, control equipment, necessary to implement the system. The Engineer shall fully design and prepare communication backbone details to include fiber optic network design including details such as fiber optic cable splicing diagrams. The Engineer shall design all electrical circuits to support all devices proposed for the project and determine availability of electrical power with the appropriate power company at the designed locations. Design specifications shall be defined in the work authorization.

In locations where Computerized Transportation Management Systems (CTMS) equipment and systems exist, the Engineer shall develop a relocation plan and prepare the necessary design sheets and details to support the relocation of existing equipment to keep systems operational during roadway construction. The Engineer shall prepare plans to provide CTMS equipment service during the construction phases that require removal or relocation of the existing equipment. The temporary CTMS plans shall include operational DMS, CCTV Camera Coverage, Traffic Sensor Systems, and telecommunications with bandwidth equivalent to the existing equipment. The Engineer shall coordinate with the

State Computerized Transportation Management Systems (CTMS) design section at the assigned District Office.

## 6. PLAN PREPARATION

The Engineer shall design the ITS system identified above in accordance with the STATE'S Design Standards. The Engineer shall determine the necessary number of sheets for a complete design. Examples of sheets to be provided by the Engineer include ITS design sheets which show locations of field devices with cabling and conduit runs; connectivity diagrams which explain how devices communicate with one another including networking equipment; fiber optic splicing diagrams; quantity sheets; and standard sheets. The finalized design provided by the Engineer shall include enough details for a contractor to procure and install equipment, provide power, and communications to a preferred location and bring the system to full operation. The State's Project Manager will review the list of sheets and provide recommendations to the Engineer as to any sheets that are needed or not needed.

The Engineer shall provide the following:

- a. Roadway-Based layout sheets to include the permanent location of all ITS devices and supporting equipment.
- b. Design and details sheets to implement the ITS system
- c. Fiber optic network design
- d. Electrical Circuit design
- e. Relocation plan if existing CTMS is in place
- f. Temporary CTMS plans to provide continued coverage during each construction phase

## DELIVERABLES

- 30% Review- The Engineer shall provide the following:
  - Title Sheet with project location map, approximate agreement(s) shown on the right- hand side of the sheet, a preliminary list of standards on the index of sheets.
  - Consolidated Summary- show the bid items
  - Utility Layouts- all utility lines shall be shown to scale on the roadway. The layout is to include a legend.
  - Plan Layouts - in addition to the north arrow, scale, centerline and alignment lines, stationing and any match line sheet numbers, plan layouts should show existing conditions, conduit runs (either bore or trench), ground boxes and controllers using appropriate legend. Legend must appear on each sheet. Title block must be filled in with appropriate project number information and Control-Section-Job (CSJ) number.

- 60% Review- The Engineer shall provide the following:
  - Title Sheet with project location map, all standards and plan sheets identified on Index of Sheets.
  - Consolidated Summary showing bid items in ascending order. This sheet must have the completed Electrical Service Data Table.
  - Completed Traffic Control Plan (TCP) line diagram.
  - Plan layouts showing estimated quantity box with appropriate bid code descriptions, conduit runs clearly labeled, completed conduit run table.
  - Preliminary Estimate.
  - Special Specifications (if needed).
  - General Notes.
  - Calculation sheet for electric conductors and service poles.
  - Engineer's internal QA/QC markup set.
- 90% Review- The Engineer shall provide the following:
  - Plan Set, including quantities, data tables, consolidated summaries and completed plan sheet estimated quantities.
  - Construction Schedule, General Notes, Special Specifications, Form 1814 and estimates must be provided for review.
  - Construction Schedule.
- 100% Submittal - the Engineer shall provide the following (the quantity of copies of the documents will be specified in the work authorization):
  - Copies of the complete 11' x 17' set of plans.
  - Copies of general notes.
  - Copies of Special Specifications and Form 1814, with a copy of the marked-up changes, if modifications have been made.
  - Original Engineer sealed plan set.
  - Electronic copy of the design files.

**B. ITS Standard Sheet and Specifications Development**

**1. STATE OF THE PRACTICE**

- a. The Engineer shall identify existing technologies and relevant applications from a vendor standpoint.



- b. The Engineer shall conduct research to determine which vendors and manufacturers supply equipment or material, that currently serves the industry, which are relevant to the standard sheet or specification being developed. The Engineer shall contact all applicable vendors, and meet in person with vendors, if necessary, as determined by the State. To minimize travel; where possible the Engineer shall meet with vendors via webinar. The Engineer shall submit relevant vendor documentation to the State, including any vendor product data sheets.
- c. The Engineer shall develop a matrix in Microsoft Excel for each standard sheet or specification which describes all operating requirements in rows, and estimated cost breakdowns of each vendor and option in columns. If cost breakdowns of individual options are not available, the Engineer shall provide cost estimates of the base model for each major component as applicable. Such parameters shall include, but not be limited to, maintenance considerations, technology and integration considerations, constructability, compatibility, considerations for future upgrades, operational considerations for the traveling public. The matrix shall describe in full detail which options are relevant to which situations, and the costs and benefits of each option. The Engineer shall submit the matrix spreadsheet to the State for review and comment.
- d. The Engineer shall conduct a literature review of applicable subject matter. This literature review may consist of, but is not limited to, other state departments of transportation, universities, and institutes. The results of this work shall be summarized in the Excel spreadsheet created above.

## 2. STATE DISTRICT AND DIVISION SURVEYS

- a. The Engineer shall review all statewide documentation provided by the State which may include existing standard sheets, previously used detail sheets and specifications. The Engineer shall update the previously developed matrix spreadsheet to include all existing parameters on these documents, and explain in a separate column how they apply to the conclusions drawn in the STATE OF THE PRACTICE task. New row entries shall not be required for parameters previously listed on this spreadsheet. The Engineer shall submit the revised matrix spreadsheet to the State for review and comment.
- b. The Engineer shall develop surveys to be distributed to State districts. These surveys shall be based on technologies learned in the STATE OF THE PRACTICE task and observations from the documents provided by the State's Project Manager. The surveys shall be designed to receive feedback from State districts on preferred technologies and any existing operational requirements. The Engineer shall submit the draft survey to the State for the State's review and comment. The Engineer shall provide a revised survey to the State with written response to all comments, before submitting the finalized survey to State districts. In some cases,

surveys shall be distributed to applicable State divisions for comment. For example, structural items shall need to be reviewed by the Bridge Division.

### 3. RECOMMENDATIONS

The Engineer shall review and update the previously developed matrix spreadsheet of technologies to include State District and Division input and any new requirements and parameters described by State District and Division found within the surveys and the literature review. With each requirement and parameter, the Engineer shall make a recommendation whether it should be included in a statewide standard sheet or specification along with written justification. The Engineer shall submit the revised matrix spreadsheet along with the Engineer's recommendations and justification to the State.

- a. The Engineer shall review the list of requirements and parameters with the State, such that there is a mutual understanding on all items. The Engineer and State may meet in person to complete this subtask.

### 4. INITIAL STANDARD SHEET AND SPECIFICATION DEVELOPMENT

- a. The Engineer shall develop draft standard sheets and specifications in the same format as existing State construction standard sheets and specifications. Specifications shall be modified from an existing specification if approval is given by the State. Draft standard sheets and specifications shall incorporate all required elements previously agreed upon with the State. Draft specifications shall include, but not be limited to, description, materials, construction, measurement, payment articles, testing, training, documentation, final acceptance, and warranty.
- b. The Engineer shall submit draft standard sheets and specifications to the State for review and comment. The Engineer shall work with the State to resolve these comments.

### 5. STATE DISTRICTS, VENDOR AND MANUFACTURER COMMENTS

- a. The Engineer shall submit the revised draft standard sheets and specifications to State districts for review and comment. The Engineer shall require submitted comments to draft standard sheets be done by 'redlining' the draft standard sheets. The Engineer shall request comments to draft specifications to be made using MS Word track changes, to include suggested wording changes with any comments. In some cases, draft standard sheets and specifications shall be distributed to applicable State divisions and a statewide ITS contractor for comment. For example, structural items will need to be reviewed by the State's Bridge Division.
- b. For each specification, the Engineer shall develop an approved compliance matrix table for each vendor and manufacturer to complete consisting of each proposed specification requirement in rows. The Engineer shall include columns for the vendor and manufacturer to state whether the vendor and manufacturer can meet or not meet the draft specification. The Engineer shall include a comment column for the vendors and manufacturers in the event the vendors and manufacturers

state they cannot meet a particular requirement. The compliance matrix shall include fields for the vendor and manufacturer names and the name of the person(s) completing the table and date. The Engineer shall submit each Specification Compliance Matrix Table to the State for approval. Submit the revised draft specification with approved compliance matrix table and applicable standard sheet(s) to vendor contacts established in the STATE OF THE PRACTICE task for comment. The Engineer shall request comments to be made using Microsoft Word track changes and include suggested wording changes with any comments. The draft specification and applicable standard sheet(s) shall be submitted to the vendors at the same time they are submitted to State districts (subtask a).

- c. The Engineer shall document all comments received and changes to each initial draft from both State Districts, Divisions and vendors in a spreadsheet format in Microsoft Excel, with separate columns of the Engineer's preferred action to be added in response to the comment and how the Engineer resolves each comment. The Engineer shall identify who and with what organization made the comment and the date it was submitted. This spreadsheet shall be referred to as the Comment Resolution Document.
  - d. The Engineer shall meet with the State to discuss the spreadsheet and come to mutual agreement on any changes to the standard sheets and specifications. The Engineer and State shall meet in person to complete this task.
  - e. The Engineer shall resubmit a second revision to State districts and vendors and manufacturers for additional comment if necessary. The Engineer shall maintain a revision history of each standard sheet and specification and update the Comment Resolution Document.
6. REVISED STANDARD SHEET AND SPECIFICATION DEVELOPMENT
- a. The Engineer shall revise and update the standard sheets and specifications, based on the agreed upon actions with the State in the STATE DISTRICTS, VENDOR, and MANUFACTURER COMMENTS task.
  - b. The Engineer shall submit the revised standard sheets and specifications to the State for review. The Engineer shall work with the State to resolve any final comments from the State's Project Manager and other State staff.
7. SUBMITTAL TO OUTSIDE AGENCIES AND OTHER STATE ENTITIES – FINALIZING STANDARD SHEETS AND SPECIFICATIONS.
- a. The Engineer shall provide the State with the standard sheets that the State will submit to the Districts, Divisions, Association of General Contractors (AGC), American Traffic Safety Services Association (ATSSA), and Federal Highway Administration (FHWA). If any comments are received, the Engineer shall provide written response, update the

Comment Resolution Document, and adjust the standard sheets as necessary. Standard sheets shall be sent by the Engineer to the STATE Standards Engineer for approval as a statewide standard sheet.

- b. The Engineer shall update and revise the standard sheets as necessary, based on any comments and changes received from the Districts, Divisions, AGC, ATSSA, FHWA and STATE Standards Engineer. The Engineer shall provide the State with the revised standard sheets for the STATE to review and provide comments to the Engineer if changes were made. The Engineer shall provide written response to these comments and adjust the finalized standard sheets. The Engineer shall provide the State with the finalized standard sheets that the State will submit to the State Standards Engineer for final approval. This finalized version will be posted as a statewide standard sheet. One original of the finalized version shall be signed, sealed and dated by the Engineer.
- c. The Engineer shall provide the State with the finalized specifications that the State will submit to the State Specification Committee for approval as a statewide specification. The State Specification Committee will review and comment on the specification. If any comments are received from the State Specification Committee, the Engineer shall provide written response within a given deadline, update the Comment Resolution Document, and adjust the specification as necessary. The Engineer shall document and resolve all comments received in the format described above.
- d. After these comments are resolved, the Engineer shall provide the State with the specification(s) that the State Specification Committee will submit to the Association of General Contractors (AGC) and FHWA for review and comment. If any comments are received, the Engineer shall provide written response, update the Comment Resolution Document and adjust the specification(s) as necessary. The Engineer shall provide the State with the revised specification(s) that the State shall submit to the State Specification Committee for final approval. The finalized version(s) will be posted as statewide specification(s).

## DELIVERABLES

The ENGINEER shall:

1. STATE OF THE PRACTICE
  - Submit relevant vendor documentation including data sheets.
  - Submit matrix spreadsheet developed in Microsoft Excel.
2. STATE DISTRICT and DIVISION SURVEYS
  - Submit revised matrix spreadsheet to State for review and comment. Revise and resubmit as necessary.
  - Submit draft survey instrument to State for review and comment. Revise and resubmit as necessary.

### 3. RECOMMENDATIONS

- Submit revised matrix spreadsheet, Engineer's recommendations and written justifications to the State.

### 4. INITIAL STANDARD SHEET AND SPECIFICATION DEVELOPMENT

- Submit draft standard sheets and specifications to the State for review and comment. Revise and resubmit as necessary.

### 5. STATE DISTRICTS, VENDOR, and MANUFACTURER COMMENTS

- Submit the revised draft standard sheets and specifications to State districts for review and comment.
- Submit compliance matrix table to the STATE for review and comment.
- Submit approved compliance matrix table and draft standard sheets and specifications to vendor contacts.
- Submit Comment Resolution Document to the State
- Resubmit draft standard sheets and specifications to State districts and vendors and manufacturers as necessary. Revise and resubmit Comment Resolution Document as necessary.

### 6. REVISED STANDARD SHEETS AND SPECIFICATION DEVELOPMENT

- Submit revised standard sheets and specifications to the State for review and comment.

### 7. SUBMITTAL TO OUTSIDE AGENCIES AND OTHER STATE ENTITIES - FINALIZING STANDARD SHEETS AND SPECIFICATIONS

- Submit an updated Comment Resolution Document to include written responses to comments received from Districts, Divisions, AGC, ATSSA, FHWA, State Standards Engineer, and State Specifications Committee.
- Revise and resubmit standard sheets and specifications as necessary.
- Submit one original and two copies of the finalized version of the standard sheet signed, sealed and dated by the Engineer.
- Provide the State a notebook containing all design calculations, associated data, justifications and basis for design decisions for each standard sheet and specification developed.
- Forward to the State electronic copies of all files, on USB drive or other approved storage device, containing the information used to prepare the standard sheets and specifications.

**ATTACHMENT D**  
**D-1**  
**WORK AUTHORIZATION NO. \_\_\_\_\_**  
**CONTRACT FOR ENGINEERING SERVICES**

**THIS WORK AUTHORIZATION** is made pursuant to the terms and conditions of Article 5 of Engineering Contract No. \_\_\_\_\_ (the Contract) entered into by and between the State of Texas, acting by and through the Texas Department of Transportation (the State), and \_\_\_\_\_ (the Engineer).

**PART I.** The Engineer will perform engineering services generally described as \_\_\_\_\_ in accordance with the project description attached hereto and made a part of this Work Authorization. The responsibilities of the State and the Engineer as well as the work schedule are further detailed in exhibits A, B and C which are attached hereto and made a part of the Work Authorization.

**PART II.** The maximum amount payable under this Work Authorization is \$\_\_\_\_\_ and the method of payment is \_\_\_\_\_ as set forth in Attachment E of the Contract. This amount is based upon fees set forth in Attachment E, Fee Schedule, of the Contract and the Engineer's estimated Work Authorization costs included in Exhibit D, Fee Schedule, which is attached and made a part of this Work Authorization.

**PART III.** Payment to the Engineer for the services established under this Work Authorization shall be made in accordance with Articles 3 thru 5 of the contract, and Attachment A, Article 1.

**PART IV.** This Work Authorization shall become effective on the date of final acceptance of the parties hereto and shall terminate on \_\_\_\_\_, unless extended by a supplemental Work Authorization as provided in Attachment A, Article 1.

The maximum contract time is the time needed to complete all work authorizations that will be issued in the first two years of the contract. All work authorizations must be issued within the initial two-year period, starting from the contract execution date.

**PART V.** This Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

**IN WITNESS WHEREOF**, this Work Authorization is executed in duplicate counterparts and hereby accepted and acknowledged below.

**THE ENGINEER**

**THE STATE OF TEXAS**

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Date)

**LIST OF EXHIBITS**

Exhibit A	Services to be provided by the State
Exhibit B	Services to be provided by the Engineer
Exhibit C	Work Schedule
Exhibit D	Fee Schedule/Budget
Exhibit H-2	Subprovider Monitoring System Commitment Agreement

**ATTACHMENT D**  
**D-2**  
**SUPPLEMENTAL WORK AUTHORIZATION NO. \_\_\_\_**  
**WORK AUTHORIZATION NO. \_\_\_\_**  
**CONTRACT FOR ENGINEERING SERVICES**

**THIS SUPPLEMENTAL WORK AUTHORIZATION** is made pursuant to the terms and conditions of Article 5 Contract No. \_\_\_\_\_ hereinafter identified as the "Contract," entered into by and between the State of Texas, acting by and through the Texas Department of Transportation (the State), and \_\_\_\_\_ (the Engineer).

The following terms and conditions of Work Authorization No. \_\_\_\_ are hereby amended as follows:

This Supplemental Work Authorization shall become effective on the date of final execution of the parties hereto. All other terms and conditions of Work Authorization No. \_\_\_\_ not hereby amended are to remain in full force and effect.

**IN WITNESS WHEREOF**, this Supplemental Work Authorization is executed in duplicate counterparts and hereby accepted and acknowledged below.

**THE ENGINEER**

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Date)

**THE STATE OF TEXAS**

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Date)

**ATTACHMENT E****FEE SCHEDULE  
(Final Cost Proposal)**

This attachment provides the basis of payment and fee schedule. **The basis of payment for this contract is indicated by an “X” in the applicable box.** The basis shall be supported by the Final Cost Proposal (FCP) shown below. If more than one basis of payment is used, each one must be supported by a separate FCP.

<b>“X”</b>	<b>Basis</b>	
<u><b>X</b></u>	Lump Sum	The lump sum shall be equal to the maximum amount payable. The lump sum includes all direct and indirect costs and fixed fee. The Engineer shall be paid pro rata based on the percentage of work completed. For payment the Engineer is not required to provide evidence of actual hours worked, travel, overhead rates or other evidence of cost.
<u><b>X</b></u>	Unit Cost	The unit cost(s) for each type of unit and number of units are shown in the FCP. The unit cost includes all direct and indirect costs and fixed fee. The Engineer shall be paid based on the type and number of units fully completed and the respective unit cost. For payment, the Engineer is not required to provide evidence of actual hours worked, travel, overhead rates or any other cost data. The FCP may include special items, such as equipment which are not included in the unit costs. Documentation of these special costs may be required. The maximum amount payable equals the total of all units times their respective unit cost plus any special direct items shown.
<u><b>X</b></u>	Specified Rate Basis	The specified rates for each type of labor are shown in the FCP below. The FCP may include special items, such as equipment which are not included in the specified rates. Payment shall be based on the actual hours worked multiplied by the specified rate for each type of labor plus other agreed to special direct cost items. The specified rate includes direct labor and indirect cost and fixed fee. The State may request documentation of reimbursable direct costs including hours worked. Documentation of special item costs may be required. The specified rate is not subject to audit.
_____	Cost Plus Fixed Fee	<p>Payment shall be based on direct and indirect costs incurred <u>plus</u> a pro rata share of the fixed fee based on the ratio of <u>labor and overhead cost incurred to total estimated labor and overhead cost in the FCP</u> or the percentage of work completed. The invoice must itemize labor rates, hours worked, other direct costs and indirect costs. The Engineer may be required to provide documentation of hours worked and any eligible direct costs claimed. The provisional overhead rate charged is subject to audit and adjustment to actual rates incurred. The FCP below shows the hourly rates for labor, other direct expenses including but not limited to travel and allowable materials, provisional overhead rate and the fixed fee.</p> <p>___A. Actual Cost Plus Fixed Fee - Actual wages are paid (no minimum, no maximum. This option does not apply to Indefinite Deliverable Contracts.)</p> <p>___B. Range of Cost Plus Fixed Fee – Actual wages <u>must</u> be within the allowable range shown on the Final Cost Proposal.</p>



## **ATTACHMENT E – FEE SCHEDULE**

### **Final Cost Proposal (FCP) Supporting Basis of Payment**

\* The **MAXIMUM AMOUNT PAYABLE** is \$ **2,000,000.00**.

The maximum amount payable is based on the following data and calculations:

\* Maximum amount payable must be negotiated for each work authorization.

**ATTACHMENT E - FEE SCHEDULE****SPECIFIED RATE AND LUMP SUM PAYMENT BASIS****PRIME PROVIDER NAME:** Cobb, Fendley & Associates, Inc.**DIRECT LABOR**

<b>LABOR/STAFF CLASSIFICATION</b>	<b>YEARS OF EXPERIENCE</b>	<b>HOURLY BASE RATE</b>	<b>HOURLY CONTRACT RATE</b>
Senior Project Manager	20+	\$68.40	\$200.21
Quality Manager	10 to 20	\$60.00	\$175.62
Senior Engineer	15+	\$58.00	\$169.77
Project Engineer	10 to 15	\$47.00	\$137.57
Design Engineer	5 to 10	\$39.50	\$115.62
Engineer-In-Training	1 to 5	\$31.25	\$91.47
Senior Engineer Tech	15+	\$35.00	\$102.44
Engineer Tech	5 to 15	\$28.00	\$81.96
Junior Engineer Tech	1 to 5	\$20.00	\$58.54
Senior CADD Operator	15+	\$30.00	\$87.81
CADD Operator	5 to 15	\$26.00	\$76.10
Junior CADD Operator	1 to 5	\$18.00	\$52.69
Admin/Clerical		\$21.00	\$61.47
Senior Traffic Tech	15+	\$22.25	\$65.13
Traffic Tech	5 to 15	\$19.50	\$57.08
Traffic Engineer- Modeler/Analyst	5 to 10	\$42.00	\$122.93
Traffic Engineer	5 to 10	\$55.00	\$160.98
<b>INDIRECT COST RATE:</b>	<b>166.09%</b>		
<b>PROFIT RATE:</b>	<b>10.0%</b>		

Contract rates include labor, overhead, and profit.

All rates are negotiated rates and are not subject to change or adjustment.

**Specified Rate Payment Basis** - Contract rates to be billed. Documentation of hours must be maintained and is subject to audit.**Lump Sum Payment Basis** - Invoice by deliverable, according to the table of deliverables. Documentation of hours worked not required.**Note:** Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.

**ATTACHMENT E - FEE SCHEDULE****SPECIFIED RATE AND LUMP SUM PAYMENT BASIS****PRIME PROVIDER NAME:**

Cobb, Fendley &amp; Associates, Inc.

**DIRECT LABOR**

<b>LABOR/STAFF CLASSIFICATION</b>	<b>YEARS OF EXPERIENCE</b>		<b>HOURLY CONTRACT RATE</b>
RPLS - Project Manager	15+		\$134.64
Licensed State Land Surveyor	10+		\$140.50
RPLS - Task Leader	10 to 15		\$125.86
Senior Survey Tech (Must be Surveyor in Training (SIT), or have a minimum of five year's surveying experience)	5 to 10		\$100.98
Survey Tech	1 to 5		\$90.74
Senior GIS Operator			\$90.74
GIS Operator			\$73.17
GIS Technician			\$64.39
Admin/Clerical			\$61.47
Project Coordinator - AM			\$128.79
Certified Photogrammetrist			\$105.37
Analytical Triangulation Specialist			\$81.96
Aerial Mapping Technician			\$71.71
Orthophoto Specialist			\$79.03
Mapping Editor (includes QA/QC, Finishing, & Finalization)			\$73.17
Aerial Office Technician			\$51.22
Project Coordinator - AP			\$114.15
Aerial Processing Technician			\$71.71
Project Coordinator - FWAL			\$107.57
Airborne LiDAR Processing Technician			\$84.88
Project Coordinator - HAL			\$107.57
Helicopter LiDAR Processing Technician			\$84.88
Project Coordinator - (HDS)			\$128.79
Processing Technician- (HDS)			\$84.88
Field Acquisition Specialist- (HDS)			\$81.96
Project Coordinator - Mobile LiDAR			\$128.79
Mobile LiDAR Processing Technician			\$84.88
Mobile Mapping Field Acquisition Specialist			\$84.88
Photo Lab Specialist			\$61.47
Photo Processing Technician			\$62.20
Flagger			\$36.59
Abstractor (Property Deed Researcher, Courthouse or Internet research)			\$64.39
Senior CADD Operator	15+		\$87.81
CADD Operator	5 to 15		\$76.10
Junior CADD Operator	1 to 5		\$70.25

Contract rates include labor, overhead, and profit.

All rates are negotiated rates and are not subject to change or adjustment.

**Specified Rate Payment Basis** - Contract rates to be billed. Documentation of hours must be maintained and is subject to audit.**Lump Sum Payment Basis** - Invoice by deliverable, according to the table of deliverables. Documentation of hours worked not required.**Note:** Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.

**ATTACHMENT E - FEE SCHEDULE****SPECIFIED RATE AND LUMP SUM PAYMENT BASIS****SUBPROVIDER NAME:** Arcadis U.S., Inc.**DIRECT LABOR**

<b>LABOR/STAFF CLASSIFICATION</b>	<b>YEARS OF EXPERIENCE</b>	<b>HOURLY BASE RATE</b>	<b>HOURLY CONTRACT RATE</b>
Project Manager	10 to 20	\$67.00	\$192.09
Quality Manager	10 to 20	\$62.00	\$177.76
Senior Engineer	15+	\$60.00	\$172.02
Project Engineer	10 to 15	\$49.00	\$140.48
Design Engineer	5 to 10	\$38.47	\$110.30
Engineer-In-Training	1 to 5	\$29.02	\$83.20
Admin/Clerical		\$22.00	\$63.07
Traffic Engineer- Modeler/Analyst	5 to 10	\$40.30	\$115.54
Senior Transportation Planner	15+	\$54.25	\$155.54
Transportation Planner IV/III	5 to 15	\$42.50	\$121.85
Transportation Planner I/II	1 to 5	\$23.00	\$65.94
Traffic Engineer	5 to 10	\$53.50	\$153.39
Senior Travel Demand Modeler	15+	\$61.59	\$176.58
Travel Demand Modeler II	5 to 10	\$50.50	\$144.79
Travel Demand Modeler I	1 to 5	\$28.85	\$82.71
<b>INDIRECT COST RATE:</b>	<b>160.64%</b>		
<b>PROFIT RATE:</b>	<b>10.0%</b>		

Contract rates include labor, overhead, and profit.

All rates are negotiated rates and are not subject to change or adjustment.

**Specified Rate Payment Basis** - Contract rates to be billed. Documentation of hours must be maintained and is subject to audit.**Lump Sum Payment Basis** - Invoice by deliverable, according to the table of deliverables. Documentation of hours worked not required.**Note:** Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.

ATTACHMENT E - FEE SCHEDULE			
SPECIFIED RATE AND LUMP SUM PAYMENT BASIS			
SUBPROVIDER NAME:		Alliance-Texas Engineering Company dba Alliance Transportation Group, Inc.	
DIRECT LABOR			
LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY BASE RATE	HOURLY CONTRACT RATE
Project Manager	10 to 20	\$58.75	\$188.70
Quality Manager	10 to 20	\$55.50	\$178.26
Senior Engineer	15+	\$53.50	\$171.84
Project Engineer	10 to 15	\$42.75	\$137.31
Design Engineer	5 to 10	\$35.10	\$112.74
Engineer-In-Training	1 to 5	\$28.50	\$91.54
Senior Engineer Tech	15+	\$33.00	\$105.99
Engineer Tech	5 to 15	\$26.50	\$85.12
Junior Engineer Tech	1 to 5	\$19.00	\$61.03
Senior CADD Operator	15+	\$28.00	\$89.93
CADD Operator	5 to 15	\$23.00	\$73.87
Junior CADD Operator	1 to 5	\$20.00	\$64.24
Admin/Clerical		\$19.00	\$61.03
Senior Traffic Tech	15+	\$25.00	\$80.30
Traffic Tech	5 to 15	\$17.00	\$54.60
Traffic Engineer- Modeler/Analyst	5 to 10	\$35.00	\$112.42
Senior Transportation Planner	15+	\$48.00	\$154.17
Transportation Planner IV/III	5 to 15	\$37.00	\$118.84
Transportation Planner I/II	1 to 5	\$20.10	\$64.56
Senior Urban Planner	15+	\$40.00	\$128.48
Urban Planner IV/III	5 to 15	\$36.00	\$115.63
Urban Planner I/II	1 to 5	\$22.84	\$73.36
Traffic Engineer	5 to 10	\$54.00	\$173.44
Senior Travel Demand Modeler	15+	\$56.00	\$179.87
Travel Demand Modeler II	5 to 10	\$45.00	\$144.54
Travel Demand Modeler I	1 to 5	\$36.00	\$115.63
INDIRECT COST RATE:	191.99%		
PROFIT RATE:	10.0%		
Contract rates include labor, overhead, and profit.			
All rates are negotiated rates and are not subject to change or adjustment.			
Specified Rate Payment Basis - Contract rates to be billed. Documentation of hours must be maintained and is subject to audit.			
Lump Sum Payment Basis - Invoice by deliverable, according to the table of deliverables. Documentation of hours worked not required.			
Note: Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.			

ATTACHMENT E - FEE SCHEDULE			
SPECIFIED RATE AND LUMP SUM PAYMENT BASIS			
SUBPROVIDER NAME:		SP Engineering, Inc.	
DIRECT LABOR			
LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY BASE RATE	HOURLY CONTRACT RATE
Senior Engineer	15+	\$58.00	\$140.36
Project Engineer	10 to 15	\$48.00	\$116.16
Design Engineer	5 to 10	\$40.00	\$96.80
Engineer-In-Training	1 to 5	\$27.00	\$65.34
Senior Engineer Tech	15+	\$35.00	\$84.70
Engineer Tech	5 to 15	\$34.00	\$82.28
Senior CADD Operator	15+	\$30.00	\$72.60
CADD Operator	5 to 15	\$29.00	\$70.18
Junior CADD Operator	1 to 5	\$23.00	\$55.66
Admin/Clerical		\$20.00	\$48.40
Traffic Engineer	5 to 10	\$44.00	\$106.48
INDIRECT COST RATE:	120.00%		
PROFIT RATE:	10.0%		
Contract rates include labor, overhead, and profit.			
All rates are negotiated rates and are not subject to change or adjustment.			
Specified Rate Payment Basis - Contract rates to be billed. Documentation of hours must be maintained and is subject to audit.			
Lump Sum Payment Basis - Invoice by deliverable, according to the table of deliverables. Documentation of hours worked not required.			
Note: Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.			

**ATTACHMENT E - FEE SCHEDULE****SPECIFIED RATE AND LUMP SUM PAYMENT BASIS****SUBPROVIDER NAME:** EPIC Transportaion Group, LP**DIRECT LABOR**

<b>LABOR/STAFF CLASSIFICATION</b>	<b>YEARS OF EXPERIENCE</b>	<b>HOURLY BASE RATE</b>	<b>HOURLY CONTRACT RATE</b>
Project Manager	10 to 20	\$60.00	\$145.20
Quality Manager	10 to 20	\$65.00	\$157.30
Senior Engineer	15+	\$58.00	\$140.36
Project Engineer	10 to 15	\$48.00	\$116.16
Design Engineer	5 to 10	\$40.00	\$96.80
Engineer-In-Training	1 to 5	\$36.00	\$87.12
Senior Engineer Tech	15+	\$33.00	\$79.86
Engineer Tech	5 to 15	\$27.00	\$65.34
Junior Engineer Tech	1 to 5	\$23.00	\$55.66
Senior CADD Operator	15+	\$35.00	\$84.70
CADD Operator	5 to 15	\$30.00	\$72.60
Junior CADD Operator	1 to 5	\$20.00	\$48.40
Admin/Clerical		\$25.00	\$60.50
<b>INDIRECT COST RATE:</b>	<b>120.00%</b>		
<b>PROFIT RATE:</b>	<b>10.0%</b>		

Contract rates include labor, overhead, and profit.

All rates are negotiated rates and are not subject to change or adjustment.

**Specified Rate Payment Basis** - Contract rates to be billed. Documentation of hours must be maintained and is subject to audit.**Lump Sum Payment Basis** - Invoice by deliverable, according to the table of deliverables. Documentation of hours worked not required.**Note:** Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.

ATTACHMENT E - FEE SCHEDULE			
SPECIFIED RATE AND LUMP SUM PAYMENT BASIS			
SUBPROVIDER NAME:		C J Hensch & Associates, Inc.	
DIRECT LABOR			
LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY BASE RATE	HOURLY CONTRACT RATE
Quality Manager	10 to 20	\$50.00	\$121.00
Admin/Clerical		\$22.00	\$53.24
Senior Traffic Tech	15+	\$25.00	\$60.50
Traffic Tech	5 to 15	\$22.00	\$53.24
INDIRECT COST RATE:	120.00%		
PROFIT RATE:	10.0%		
Contract rates include labor, overhead, and profit.			
All rates are negotiated rates and are not subject to change or adjustment.			
<b>Specified Rate Payment Basis</b> - Contract rates to be billed. Documentation of hours must be maintained and is subject to audit.			
<b>Lump Sum Payment Basis</b> - Invoice by deliverable, according to the table of deliverables. Documentation of hours worked not required.			
<b>Note:</b> Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.			



**ATTACHMENT E - FEE SCHEDULE****SPECIFIED RATE AND LUMP SUM PAYMENT BASIS****SUBPROVIDER NAME:** Crouch Enviromental Services, Inc.**DIRECT LABOR**

<b>LABOR/STAFF CLASSIFICATION</b>	<b>YEARS OF EXPERIENCE</b>		<b>HOURLY CONTRACT RATE</b>
Senior Public Involvement Officer	15+		\$167.00
Public Involvement Officer	5 to 15		\$160.00
Senior Public Involvement Specialist	15+		\$140.00
Public Involvement Specialist	5 to 15		\$100.00
Junior Public Involvement Specialist	1 to 5		\$61.25
Admin/Clerical			\$62.50

Contract rates include labor, overhead, and profit.

All rates are negotiated rates and are not subject to change or adjustment.

**Specified Rate Payment Basis** - Contract rates to be billed. Documentation of hours must be maintained and is subject to audit.**Lump Sum Payment Basis** - Invoice by deliverable, according to the table of deliverables. Documentation of hours worked not required.**Note:** Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.

**ATTACHMENT E - FEE SCHEDULE****UNIT COST PAYMENT BASIS****SUBPROVIDER NAME:**

Arcadis U.S., Inc.

SERVICES TO BE PROVIDED		UNIT	COST
24-Hour Automated Tube Counts - Volume		per counter/day	\$190.00
24-Hour Automated Tube Counts - Bi-directional		per counter/day	\$140.00
24-Hour Automated Tube Counts - Urban Freeway Main Lanes		per counter/day	\$425.00
24-Hour Automated Tube Counts - Rural Main Lanes		per counter/day	\$300.00
24-Hour Automated Tube Counts - Speed or Class		per counter/day	\$200.00
Intersection Turning Movement Counts		per counter/hour/day	\$100.00
Turning Movement Count (12-hour Manual) Minor Intersection		each	\$700.00
Turning Movement Count (12-hour Manual) Major Intersection		each	\$1,200.00
2-hour Turning Movement Count, Minor Intersection, Weekday		each	\$175.00
2-hour Turning Movement Count, Major Intersection, Weekday		each	\$350.00
2-hour Turning Movement Count, Minor Intersection, Weekend		each	\$190.00
2-hour Turning Movement Count, Major Intersection, Weekend		each	\$390.00
Travel Time Runs in DMI-Equipped Vehicle (Includes labor and mileage)		hour	\$140.00
Speed Survey (location)		per location	\$170.00
Intersection Diagrams / Sketches		per intersection	\$85.00
Intersection Photography		per intersection	\$35.00
24 Hour Volume Mainlane Video/Radar Count		per lane/day	\$150.00
24 Hour 3 Vehicle Classification Main Lane Count		per lane/day	\$190.00
25 Hour 13 Vehicle Classification Main Lane Count		per lane/day	\$350.00
72 Hour Bluetooth O/D Main Lane		per unit	\$1,100.00
72 Hour Bluetooth O/D Arterial		per unit	\$600.00

The unit costs shown include labor, overhead, and profit. Payment based on units completed. No partial payments.

All unit costs are negotiated costs and are not subject to change or adjustment.

**Unit Cost Payment Basis:** If unit costs by year are included, unit costs billed should correspond to the fiscal or calendar year, if applicable, in which the work was done.

**Note:** Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.

ATTACHMENT E - FEE SCHEDULE			
UNIT COST PAYMENT BASIS			
PRIME PROVIDER NAME:		Cobb, Fendley & Associates, Inc.	
SERVICES TO BE PROVIDED		UNIT	COST
1 - Person Survey Crew (GPS and Robotic Total Stations included in indirect cost rate. Mileage not included.)		hour	\$99.00
2 - Person Survey Crew (GPS and Robotic Total Stations included in indirect cost rate. Mileage not included.)		hour	\$145.00
3 - Person Survey Crew (GPS and Robotic Total Stations included in indirect cost rate. Mileage not included.)		hour	\$165.00
4 - Person Survey Crew (GPS and Robotic Total Stations included in indirect cost rate. Mileage not included.)		hour	\$200.00
LiDAR Mobile Mapping System, (Includes Vehicle Operator, LiDAR Technician mileage on project and fuel) (Does not include travel to project.)		day	\$6,000.00
Mobilization for Aerial Photography/LiDAR Fixed Wing Aircraft (Includes aircraft, Pilot, Camera/LiDAR Operator, fuel and transportation cost)		mile	\$19,000.00
Aerial Photography Flight Crew Fixed Wing Aircraft (Includes Pilot and Camera Operator)		hour	\$180.00
LiDAR Flight Crew Fixed Wing Aircraft (Includes Pilot and LiDAR Operator)		hour	\$185.00
Mobilization for Helicopter Airborne LiDAR (Includes helicopter, Pilot, LiDAR Operator, fuel and transportation cost)		mile	\$19,000.00
Helicopter Flight Crew Fixed Wing Aircraft (Includes Pilot and LiDAR Operator)		hour	\$185.00
The unit costs shown include labor, overhead, and profit. Payment based on units completed. No partial payments.			
All unit costs are negotiated costs and are not subject to change or adjustment.			
<b>Unit Cost Payment Basis:</b> If unit costs by year are included, unit costs billed should correspond to the fiscal or calendar year, if applicable, in which the work was done.			
<b>Note:</b> Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.			

ATTACHMENT E - FEE SCHEDULE			
OTHER DIRECT EXPENSES			
RATES SHOWN APPLY TO PRIME PROVIDER AND ALL SUBPROVIDERS			
SERVICES TO BE PROVIDED	UNIT	FIXED COST	MAXIMUM COST
Lodging/Hotel - Taxes and Fees	day/person		\$35.00
Lodging/Hotel (Taxes/fees not included)	day/person		Current State Rate
Meals (Excluding alcohol & tips) (Overnight stay required)	day/person		Current State Rate
Mileage	mile	Current State Rate	
Rental Car Fuel	day		\$25.00
SUV or ATV Rental (Includes taxes and fees; Insurance costs will not be reimbursed)	day		\$100.00
Rental Car Fuel	gallon		\$3.75
Rental Car (Includes taxes and fees; Insurance costs will not be reimbursed)	day		\$65.00
Air Travel - In State - Short Notice (Coach)	Rd Trip/person		\$550.00
Air Travel - In State - 2+ Wks Notice (Coach)	Rd Trip/person		\$380.00
Air Travel - Out of State - 2+ Wks Notice (Coach)	Rd Trip/person		\$700.00
Air Travel - Out of State - Short Notice (Coach)	Rd Trip/person		\$600.00
Taxi/Cab fare	each/person		\$20.00
Parking	day		\$15.00
Toll Charges	each		\$2.00
Standard Postage	letter	Current Postal Rate	
Certified Letter Return Receipt	each	Current Postal Rate	
Overnight Mail - letter size	each	Current Postal Rate	
Overnight Mail - oversized box	each		\$40.00
Courier Services	each		\$25.00
Photocopies B/W (11" X 17")	each	\$0.15	
Photocopies B/W (8 1/2" X 11")	each	\$0.10	
Photocopies Color (11" X 17")	each	\$1.25	
Photocopies Color (8 1/2" X 11")	each	\$0.75	
Digital Ortho Plotting	sheet	\$2.00	
Plots (B/W on Bond)	per sq. ft.	\$0.50	
Plots (Color on Bond)	per sq. ft.	\$1.00	
Plots (Color on Photographic Paper)	per sq. ft.	\$4.00	
Color Graphics on Foam Board	square foot	\$5.00	
Presentation Boards 30" X 40" Color Mounted	each		\$100.00
Report Printing	each		\$50.00
Report Binding and tabbing	each	\$5.00	
Notebooks	each		\$5.00
Reproduction of CD/DVD	each		\$5.00
CDs	each	\$1.00	
4" X 6" Digital Color Print	picture	\$0.30	
Hazardous Materials Database Search	per search		\$300.00
Environmental Field Supplies (lathes, stakes, flagging, spray paint, etc.)	day		\$20.00
Curator (Drawer & TX Archaeological Research Lab for artifacts & report)	per project		\$500.00
Newspaper Advertisement	per publication		\$500.00
Professional Narrator for Public Involvement	hour	\$200.00	
FEMA FIS Backup Data Request	each		\$300.00
Railroad - Flagger (Service provided by RR)	hour		\$55.00
Railroad - Insurance in addition to STD Minimum Required (Minimum coverage of \$1 Million required by RR.)	each		\$2,000.00
Railroad - Permit [Note: Read and then delete this note. Most railroad companies charge a fee of \$500 for the permit to access their property.]	each		\$1,000.00
Railroad - Safety Training (If required - Heavy Rail Safety Training Certificate, includes classroom training and employee certification card.)	Per Person		\$250.00
Traffic Control Services, Arrow Boards and Attenuator trucks - Large Project (Includes labor, equipment and fuel)	day		\$3,000.00
Traffic Control Services, Arrow Boards and Attenuator trucks - Medium Project (Includes labor, equipment and fuel)	day		\$2,200.00
Traffic Control Services, Arrow Boards and Attenuator trucks - Small Project (Includes labor, equipment and fuel)	day		\$1,400.00
Attenuator trucks - (Lane/Shoulder Closure) (Includes labor, equipment and fuel)	day		\$300.00
Attenuator trucks - (No Lane Closure) (Includes labor, equipment and fuel)	day		\$200.00

ATTACHMENT E - FEE SCHEDULE			
OTHER DIRECT EXPENSES			
RATES SHOWN APPLY TO PRIME PROVIDER AND ALL SUBPROVIDERS			
SERVICES TO BE PROVIDED	UNIT	FIXED COST	MAXIMUM COST
Flashing Arrow Board	day		\$400.00
Portable Message Board	day		\$150.00
Law Enforcement/Uniform Officer (including vehicle)	hour		\$70.00
Required Permit Fees (non- railroad)	each		\$250.00
Boat with Motor	day		\$250.00
Fathometer	day		\$80.00
Backhoe Rental	day		\$1,000.00
Map, Tapes, and Supplies	each	\$3.00	
GPS Receiver (rates applied to actual time GPS units are in use)	hour		\$25.00
GPS RTK (rates applied to actual time GPS units are in use)	hour	\$25.00	
GPS Static (rates applied to actual time GPS units are in use)	hour	\$25.00	
Map Records	sheet		\$2.00
Deed Copies	sheet	\$1.50	
Certified Deed Copies	sheet	\$2.00	
Historical Aerial Images	unit		\$100.00
Aerial Photographs (1" = 500' scale)	each		\$100.00
Type II ROW Monument - Excavated/Drilled, rocks, rocky soil. 2-4 inch depth (includes crew time, equipment, materials, rentals, & labor). Brass Marker supplied by TxDOT	each	\$50.00	
Type II ROW Monument - Poured 2-3 Feet (includes One Call, crew time, equipment, materials, rentals, labor). Brass Marker supplied by TxDOT	each	\$200.00	
Reprographics	per sq. ft.	\$4.00	
Terrestrial Laser Scanner (rates applied to actual time scanner unit is in use)	hour	\$85.00	
Ground Target (includes paint, panel material, etc.)	each	\$25.00	
Helicopter Equipment LiDAR - Project Flight Miles (On project flight miles)	per mile		\$20.00
Helicopter Equipment LiDAR - Transit Miles (including turn, maneuver miles and local airport to project)	per mile		\$12.50
Fixed Wing Airborne LiDAR - Project Flight Miles (On project flight miles)	per mile	\$8.00	
Fixed Wing Airborne LiDAR - Transit Miles (including turn, maneuver miles and local airport to project)	per mile	\$7.00	
Aerial Photography - Airborne GPS/IMU Data collection/Processing	Per Project	\$2,000.00	
Aerial Photography - Project Flight Miles (On project flight miles)	Per Mile	\$28.00	
Aerial Photography - Transit miles (including turn, maneuver miles and local airport to project)	Per Mile	\$6.00	
Photo Lab Service - Black and White Processing (film, development, scanning)	Per Frame	\$18.00	
Photo Lab Service - Color Infrared Processing (film, development, scanning)	Per Frame	\$25.00	
Photo Lab Service - Color Processing (film, development, scanning)	Per Frame	\$26.00	
Photo Lab Service - Digital image processing	Per Frame	\$25.00	
Photo Lab Service - Enlargements, Lamination, Mounting	per sq. ft.	\$5.00	
Law Enforcement Officer (without vehicle)	per hour	\$45.00	
Public Involvement Facility Rental	per event		\$900.00
Audio Visual Equipment Rental	per meeting		\$300.00
Court Reporter	per Day		\$500.00
Court Reporter	per page	\$6.00	
Public Notices - Mass Mailing (500 pieces)	per mailing		\$200.00
Translator for Public Involvement	per hour		\$75.00
Custodian for Public Involvement	hour/custodian		\$27.50
<b>Profit not allowed on Other Direct Expenses.</b>			
<b>For Cost Plus Fixed Fee, Specified Rate, and Unit Cost</b> - Fixed cost items to be billed at the fixed cost rate. Documentation, such as a usage log, must be maintained for audit purposes, and may be required to be submitted as a basis for reimbursement. For items with a maximum cost, actual cost to be billed not to exceed the maximum shown. Itemized receipts must be maintained for audit purposes, and may be required to be submitted as a basis for reimbursement.			
<b>For Lump Sum</b> - No documentation required. Invoicing by physical percent complete includes combination of direct labor and other direct expenses.			
<b>NOTE: For Cost Plus Fixed Fee, Specified Rate, and Unit Cost</b> - Miscellaneous other direct expenses up to \$100 per unit will be reimbursed at cost if approved and documented in advance by the State's Project Manager. Miscellaneous other direct expenses of \$100 per unit or more will not be reimbursed unless a supplemental agreement to the contract and work authorization (if WAs are used) has been executed in advance authorizing the miscellaneous other direct expenses. No more than \$2,500 in miscellaneous other direct expenses may be approved by the State's Project Manager over the life of this contract including prime provider and subproviders. <b>For Lump Sum</b> - This statement does not apply.			

WAs Used

Contract No. 36-6IDP5370  
PeopleSoft Contract No. 5685

## **ATTACHMENT F**

Not Applicable

**ATTACHMENT G**  
**Computer Graphics Files for Document and Information Exchange**

**STATE DOCUMENT AND INFORMATION EXCHANGE**  
**HOUSTON DISTRICT PROCEDURES**

House Bill 6 enacted by the 63rd legislature, established uniform procedures for the transmittal of Texas Department of Transportation (State) information to outside parties. These procedures are currently being successfully used for documenting the transmittal of computer data. The following corollary procedure has been developed to assure uniform transaction documentation, adequate storage environments, and sufficient information to enable indexing and shared access of computer media received.

Exchange of project files between the State Project Manager and the Engineer shall be performed by using virus-free CD/DVDs. Deliveries of virus-free CD/DVDs containing project files by the Engineer are to include a completed MEDIA INFORMATION FORM (hardcopy sample attached).

Upon final approval and acceptance of the job, the State Project Manager will send all project files and one copy of the MEDIA INFORMATION FORM (if applicable) to the State's Network Operations in the State's Information Systems for archiving, indexing, and subsequent retrieval. The information on archived design projects will be available for use by all State employees.

No media provided by the Engineer will be accepted by a State Project Manager without a properly prepared MEDIA INFORMATION FORM prepared by the Engineer.

It is the additional responsibility of the State Project Manager to assure all files received from an Engineer meet State standards. To enable a workable procedure that will benefit all computer users, information on files delivered by CD/DVD shall be included as follows:

1. The State's Project Manager will use the MEDIA INFORMATION FORM(s) to document any existing Engineer prepared, original, computer media in the State's possession.
2. The State's Project Manager will review the MEDIA INFORMATION FORM(s) provided by the Engineer and determine that adequate indexing information is available. The media contents shall be able to be determined based solely on the information contained on the MEDIA INFORMATION FORM(s).
  - A. If existing media documentation is adequate, the State's Project Manager will forward the media and the completed requisite form to the State's Network Operations.
  - B. If existing media documentation is inadequate, the State's Project Manager will review the contents of the media locally and complete the documentation prior to submitting to the State's Network operations.

## **SPECIAL PROVISIONS STANDARDS AND REQUIREMENTS**

### **PURPOSE:**

The purpose of the following Special Provisions is to identify and define the State's Information Systems requirements and approved procedures to facilitate their use by both the Engineer and the State. The State recognizes that it has a significant investment in hardware, software, and training of personnel engaged in automated plan preparation, and precautions are required to assure that the products of this contract are compatible with that investment. It is State's intention that: The Engineer shall provide virus-free files and plots generated from those files. The virus-free files provided by the Engineer, using the State's hardware and software, shall display as plotted and, subsequently, plot as displayed without conversion, translation, or additional manipulation. In as much as the goal of this contract is to obtain the Engineer's original engineering products, no conversion or translation expenses incurred by the Engineer shall be charged to, or be paid by, State.

### **GENERAL REQUIREMENTS:**

Due to the variety of hardware and software available in each section and area office of the State, and to assure the compatibility of files received and data exchanged, the State Project Manager will indicate all approved media(s) and data format(s) on the included APPROVED PRODUCTS LIST. The Engineer shall provide, using exclusively the products selected from the APPROVED PRODUCTS LIST, virus-free files and data conforming to the column spacing and format conventions required by State programs unless alternately directed by the State Project Manager (see attached Column and Spacing Formats section of these Special Provisions). The Engineer shall scan the media for viruses prior to delivering any files to State.

It is the Engineer's responsibility to solicit any additional information that may be required to assure that all media, files and data formats are 100 percent compatible with State's information resources.

### **MICROSTATION GRAPHICS FILES:**

The Engineer shall be furnished, on the State's choice of media listed on the attached APPROVED PRODUCTS LIST, the following information:

1. State's File Examples
2. State's Plot File Examples
3. CAD File Naming Convention Guideline for the State's District.

MicroStation .DGN file characteristics shall be consistent with State standards including, but not limited to, level use, font designations, line weight and color criteria. These characteristics are not to be altered or revised in any manner without authorization by the State's District Information Resources Administrator. Should a compatibility problem arise, it is the responsibility of the Engineer to bring the problem to the attention of the State Project Manager who will work with the State's Information Systems personnel and negotiate an appropriate solution.



It is the intent of State, and this contract, to secure MicroStation .DGN files which have elements of the same integrity, singularly, and attributes as elements generated by State's CADD system, Bentley's MicroStation, as well as, file utilization consistent with State standards. (See this project's Scope of Services for specific version information.)

### **PROJECT DESIGN FILE CRITERIA**

File Descriptions And Terminology: Level use, element location, style, and symbology requirements to be used by the Engineer shall follow:

**Planimetric File:** Generally a product of stereo digitized aerial photography. The planimetric contains existing topographic and geographic features within the limits of the projected contract. The Planimetric serves as a foundation for referencing and the development of the proposed. Without the State Project Manager's written agreement, this file shall not be modified.

**Master Design File, or Schematic Layout:** Graphical description of proposed improvements containing graphic elements representing engineering alignments and proposed features. Categories which can simultaneously reference identical coordinates of the planimetric include Right Of Way Maps, Roadway Design, Bridge Design, Traffic Signing, Signals, Striping and Control Plans, and Project Limits Profiles.

### **SHEET FILE:**

Standard sheet format to be used by the Engineer shall be appropriate to the category of the Design File it references. The referenced Design File is to be displayed within a single sheet file and shall be terminated by clip referencing to matchlines contained in the Design File. The sheet file shall contain all annotation appropriate to the Design File application or category being referenced. Typical examples are text, dimensioning, ramp labeling, patterning, hatching, profile data.

### **FILE REQUIREMENTS**

**The virus-free media delivered by the Engineer shall include documentation of the following:**

1. A Media Directory Listing shall be supplied with this information.
2. The symbology, weight, style and color standards for design elements.
3. Level menu showing level use consistent with State standards.
4. Font characteristics and pen tables consistent with State standards. (Standards Attached)
5. Completed Engineer media index showing name and contact information for computer systems utilized by the Engineer. (Form Attached)
6. CAD File Naming Convention Guidelines as outlined below:

**GENERAL INFORMATION:**

File names to be used by the Engineer are subject to modifications, additions and deletions in the future by the State.

File names to be used by the Engineer shall follow the File Naming Convention Guidelines unless there is a need for a supplemental description to locate a particular sheet within a plan.

Any files that deviate from the standard file naming convention guidelines shall be submitted by the Engineer to the State Project Manager for review and approval prior to being placed in production. All deviations to the naming convention will be reviewed by the State's CADD Section in the State's Information Systems for compatibility and inclusion into this document.

The Engineer shall not use any spaces or special characters such as @, #, -, >, (, +, %, etc. except for underbars \_ in file names.

The Engineer shall ensure that all State Standard Sheets retain the name designated by the Issuing District or Division.. The Engineer shall ensure standards be placed under a corresponding subfolder as defined by the File Folder Structure listed below For example Driveway Details would be placed under Roadway and subfolder named Standards.

The Engineer, shall ensure each sheet of the plan set is contained in its own separate design file prior to final submittal of the deliverables to the State. The State will review and verify that each sheet of the plan set in the final submittal is contained in its own separate design file This is very important for project archiving and for the repairing of a file in the event it becomes corrupted.

**STANDARD FILE NAMING CONVENTION:****ROADWAY****aa##**

**aa** = Plan sheet type (will be more than two digits in some instances)

**##** = Number identifying the number of drawings of the same type, i.e., 01, 02, 03, ...  
(Minimum of two digits are necessary.)

THE USE OF A 3 DIGIT JOB IDENTIFICATION AT THE FRONT OF THE FILE NAME IS AN OPTION. For example the Alignment file for CSJ 072003102 could be named 102RAL01.dgn.

**FILE FOLDER STRUCTURE****CSJ \_Hwy****Subfolders**

Example:

CSJ\_Hwy = 038907029\_SH146

Subfolder = Ref\_Base

**Subfolder REF\_BASE (References and Basemaps)**

<i>Sheet Type</i>	<i>DGN Name (First letter will be an R)</i>
Aerial Maps	RA## (example: RA01.dgn)
Alignments	RAL##
Pavement/Geometry	RG##
Drainage	RD##
Drainage Areas	RDA##
Profiles	RP##
Right of Way	ROW##
Traffic Control (Phase)	RTC## (example: RTC02.dgn=Traf. Cont. Phase 2)
Utilities	RU##
Bench Mark Layout	RBM##
Bore Location Layout	RBO##
Exist. Ground (2d)	R2D##
Exist. Ground (3D)	R3D##
Schematic	RS##
Schematic-Plot file	RSP##
Engineer Seal	RES##
Border File	RBD##
Miscellaneous	RM##

**Subfolder GENERAL**

<i>Sheet Type</i>	<i>DGN Name (First letter will be a G)</i>
Title Sheet	GT##
Index of Sheets	GIX## (.xls or .dgn files)
Prop. Typical Sections	GTY##
Exist. Typ. Sections	GXT##
Project Layouts	GPL##
Permits	GPM##
General Notes	GN##
Summary Sht. Roadway	GSR##
Summary Sht. Stm. Swr	GSS##
Summary Sht. Traffic Con.	GST##
Summary Sht. Pv. Mark	GSP##
Estimated Quantities	GQ##

**Subfolder ROADWAY**

<i>Sheet Type</i>	<i>DGN Name (First letter will be a P)</i>
Plan View-Roadway	PVR##
Plan & Profile-Roadway	PP##
P&P-Roadway LEFT	PPL##
P&P-Roadway RIGHT	PPR##

P&P-Access Road	PAC##
Plan View-Intersection	PVI##
Plan & Profile-Intersection	PPI##
Plan & Profile-Ramps	PPM##
Survey Data	PSR##
Horiz. Align. Layout	PHA##
Horiz. Align. Data	PHD## (.xls or .dgn files)
Superelevation Tables	PSU##
Plan View-Widening	PVW##
Miscellaneous	PM##

*Subfolder under ROADWAY***BENCHMARK**

<i>Sheet Type</i>	<i>DGN Name (First letter will be a P)</i>
Benchmark Data Sheets	PBM## (.xls or .dgn files)
Miscellaneous	PBM##

*Subfolder under ROADWAY***BORE\_ LOG**

<i>Sheet Type</i>	<i>DGN Name (First letter will be a P)</i>
Bore Log Sheets	PBO##
Miscellaneous	POM##

*Subfolder* **RDWY\_STR**

<i>Sheet Type</i>	<i>DGN Name (First letters will be PS)</i>
Retaining Wall Layouts	PSL##
Ret. Wall Foundations	PSF##
Ret. Wall Underdrain	PSD##
Sound Wall Layout	PSW##
Miscellaneous	PSM##

*Subfolder* **DRAINAGE**

<i>Sheet Type</i>	<i>DGN Name (First letter will be a D)</i>
Plan View-Drain. Area	DDA##
Plan & Profile-Storm Swr	DPS##
P&P Storm Main Lane	DPM##
P&P Storm Lt. Frtg. Rd.	DPL##
P&P Storm Rt. Frtg. Rd.	DPR##
P&P Storm Trunk Line.	DPT##
Detention Areas-Plan	DDT##
Detention Plan & Profile	DET##
Plan & Profile-Ditches	DPD##
P&P Ditch Main Lane	DDM##
P&P Ditch Left	DDL##
P&P Ditch Right	DDR##

P&P Outfall/Channels	DPO##	
Box Culvert Layout	DBX##	
Cross Structure Layout	DCS##	
Hyd Comp/Data Sheets	DHY##	(.xls or .dgn files)
Erosion Control/Stm. Wtr.	DEC##	
Miscellaneous	DM##	

**Subfolder RAILROAD**

<i>Sheet Type</i>	<i>DGN Name</i>	<i>(First letters will be RR)</i>
Railroad Layout	RRL##	
Railroad Signals	RRS##	
Railroad Planking	RRP##	
Railroad Bridge	RRB##	
Railroad Drainage	RRD##	
Railroad Traffic Signals	RRT##	
Miscellaneous	RRM##	

**Subfolder TRAF\_CONT (Traffic Control)**

<i>Sheet Type</i>	<i>DGN Name</i>	<i>(First letter will be a T)</i>
Gen. Constr. Sequencing	TCS##**	(example: TCS21.dgn=Constr. Sequence Phase 2, Sheet 1)
Detour Plan	TDT##	
Traffic Control Typical	TCT##	

Traffic Control Sheets (Phase) Cont. Phase	TC**_##	(example: TC2a_05.dgn = Traf. 2a, Sheet 5)
Traffic Control Sheets (Steps)	TC**_S**_##	(example: TC2a_S05_10.dgn=Traf. Cont. Phase 2a, Step 5, Sheet 10)

Warning Signs	TWS##	
Temporary Signals	TTS##	
Temporary Lighting	TTL##	
Demolition Plans	TDM##	
Miscellaneous	TMS##	

**Subfolder BRDG\_STR (Bridges and Structures)**

<i>Sheet Type</i>	<i>DGN Name</i>	<i>(First letter will be a B)</i>
Bridge Layout	BL##	(Bridge Layouts)
Estimates	BEQ##	(Estimated Quantities and Bearing Seat Elev.)
Bridge Repair	BRD##	(Bridge Repair Details)
Column Details	BCD##	(Green Ribbon Columns, specialty columns)
Abutments	BA##	(Abutments and Details)
Drainage Details	BDD##	(Bridge Drainage Details)
Bents	BB##	(Bents and Details)
Foundation Details	BFD##	(Footings, Foundation Plans)

Framing Plan	BFP##	(Framing Plan)
Pier Protection	BPP##	(Bulkhead Details, Fenders, Crashwalls)
Standards and Aesthetics	BSTD##	(All Standards including Modular Joint Details, Rail Standards, Beam Design Standards, Lighting Pole Mounting Details)
Steel Details	BS##	(Plate Girder, Box Girder, Pot Bearing Details, Deadload Deflection Diagram, Camber Data, Bridge Notes)
Slab Details	BSD##	(Slab Plans and Details)
Segmental	BSEG##	(Pier Tables, Segmental Section Properties, Web Details, Post Tension Tendon Details)
Miscellaneous	BMI##	(Water Hanger Bolt Assembly, Tied Arch Erection Bracing, Soil Retaining Wall Shoring Design Criteria, Precast Connection Option, Ladder Detail)

**Subfolder SIGNAL\_LIGHTING**

<i>Sheet Type</i>	<i>DGN Name</i>	<i>(First letter will be an S)</i>
-------------------	-----------------	------------------------------------

Plan Layout	SL##	
Circuit Diagram	SC##	
Elevation Views	SE##	
Details	SD##	
Miscellaneous	SM##	

**Subfolder SIGN\_PVMT\_MRK (Signs and Pavement Markings)**

<i>Sheet Type</i>	<i>DGN Name</i>	<i>(First letter will be an M)</i>
-------------------	-----------------	------------------------------------

Layout Sheets	ML##	
Guide Sign	MG##	
Sign Elevation Structure	MSE##	
Miscellaneous	MM##	

**Subfolder CTMS**

<i>Sheet Type</i>	<i>DGN Name</i>	<i>(First letter will be a C)</i>
-------------------	-----------------	-----------------------------------

Layout Sheets	CL##	
Details	CD##	
Miscellaneous	CM##	

**Subfolder ROW**

<i>Sheet Type</i>	<i>DGN Name</i>	<i>(First letter will be a W)</i>
-------------------	-----------------	-----------------------------------

Property Map	WM##	
Parcel Map	WP##	
Miscellaneous	WMI##	

**Subfolder UTILITIES**

<i>Sheet Type</i>	<i>DGN Name (First letter will be a U)</i>
Layouts-existing	ULE##
Layouts-proposed	ULP##
Utility Legend Sheet	ULS##
Details	UD##
Miscellaneous	UM##

**Subfolder LANDCSAPING**

<i>Sheet Type</i>	<i>DGN Name (First letter will be an L)</i>
Layout	LL##
Details	LD##
Miscellaneous	LM##

**Subfolder ENVIRONMENTAL**

<i>Sheet Type</i>	<i>DGN Name (First letter will be an E)</i>
Storm Water (SW3P)	ESW##
Data Sheets	ED##
Irrigation System	EI##
Plant Establishment	EP##
Wetland Mitigation Plan	EWM##
Environmental Permits Issues and Permits	EPI##
Miscellaneous	EM##

**Subfolder GEOPAK**

<i>Sheet Type</i>	<i>DGN Name (First letter will be a K)</i>
Sheet clipping	KS##
Pattern Lines	KP##
Superelevation Shapes	KSU##
Exist Cross Sections	KEX##
Prop. Cross Sections	KPX##
Prop. Earthwork Cross Sec.	KEW##
Plan	KPL##

**Subfolder GPK**

**This folder contains the .gpk file, all input files, output files and other files generated using the program.**

**MINIMUM MICROSTATION GRAPHIC FILE REQUIREMENTS:**

As a minimum requirement, the MicroStation .DGN graphic files to be provided by the Engineer to the State shall be comprised of elements defined with the following graphic entities and attributes.

**Required graphic entities:**

Line	-	2 connected points that form a single entity
Line Strings	-	a series of connected points that form a single entity
Polygon	-	a series of connected points that form a closed entity
Circle	-	the geometric definition of a circle (not a line string)
Arc	-	a segment of a circle (not a linestring or polygon)
Symbol	-	a group of graphic entities that form a single entity
Cell	-	a named, retrievable symbol

**Required entity attributes:**

Level	-	a drawing layer that can be selectively turned on or off
Line Weight	-	a line weight (width)
Line Style	-	a line symbology (dashed, dot-dash, etc.)
Color	-	a color code

All plots and graphics media provided by the Engineer to the State as a result of this contract shall become the property of State.



**APPROVED PRODUCTS LIST**  
(STATE: Check the appropriate media.)

Microcomputer and High-End Workstation Media Types	Data Format
<input type="checkbox"/> CD-ROM	<input type="checkbox"/> Intel
<input type="checkbox"/> DVD-ROM	<input type="checkbox"/> Intel
<input type="checkbox"/> USB Memory Stick	<input type="checkbox"/> Intel

**POSSIBLE SOFTWARE**  
(STATE: Check the appropriate software.)  
(Enter version number in space provided.)

Word Processors	Spreadsheet Programs
Microsoft Word v. _____	Microsoft Excel v. _____
Database Programs	Operating System
Microsoft Access v. _____	Microsoft XP v. _____
CADD Software	
Bentley MicroStation v. _____	
Bentley GeoPak v. _____	

State Project Manager Printed Name: \_\_\_\_\_

State Project Manager Signature: \_\_\_\_\_

**TEXAS DEPARTMENT OF TRANSPORTATION**  
**MEDIA INFORMATION FORM**

FIRM NAME \_\_\_\_\_

FIRM CONTACT \_\_\_\_\_ PHONE NO. \_\_\_\_\_

STATE CONTACT \_\_\_\_\_

MEDIA OPERATING SYSTEMS \_\_\_\_\_

MEDIA FORMAT \_\_\_\_\_

LIMITS \_\_\_\_\_

ACCOUNT/CONTRACT NO. \_\_\_\_\_

CSJ NO. \_\_\_\_\_ HIGHWAY NO. \_\_\_\_\_

THE FILES HAVE BEEN SCANNED  
FOR VIRUSES AND ARE VIRUS FREE: \_\_\_\_\_  
(NAME)

(EXAMPLE FOR THE MEDIA LABEL: THE FILES LISTED ON THIS FORM  
THAT ARE ON 2 OR MORE MEDIA MUST BE LABELED WITH THE CSJ NO.  
0999-99-9999 AND NUMBERING SYSTEM OF 1 OF 2, 2 OF 2.)

MEDIA LABEL \_\_\_\_\_ OF \_\_\_\_\_

---

TO BE COMPLETED BY \_\_\_\_\_ DISTRICT INFORMATION SYSTEMS PERSONNEL

INDEX NUMBER: \_\_\_\_\_ DATE RECEIVED: \_\_\_\_\_

RECEIVED BY: \_\_\_\_\_

DELIVERED BY: \_\_\_\_\_

VERIFIED VIRUS FREE: \_\_\_\_\_ DATE: \_\_\_\_\_

SPECIAL INSTRUCTIONS: \_\_\_\_\_

---

**DRAWING INDEX**

CSJ NO. \_\_\_\_\_ HIGHWAY NO. \_\_\_\_\_

MEDIA LABEL \_\_\_\_\_ OF \_\_\_\_\_ ACCOUNT/CONTRACT NO. \_\_\_\_\_

DESIGN FILE NAME	DESCRIPTION/STATION LIMITS	SIZE	SHEET	REFERENCE
102ral01.dgn	Alignment File			

**LEVEL STRUCTURE**

CSJ NO.		DRAWING TITLE		HIGHWAY
		<b>ROADWAY PLAN AND PROFILE</b>		

DESIGN FILE NAME		STATION LIMITS		SHEET NO
<b>RPP09.DGN</b>		<b>1046+00 TO 1057+00</b>		<b>107</b>

RF	REFERENCE FILE NAME	REFERENCE DESCRIPTION
1	<i>ALIGN.DGN</i>	<i>HORIZONTAL ALIGNMENT FILE</i>
2	<i>BGEOM.DGN</i>	<i>BRIDGE GEOMETRY FILE</i>
3	<i>DTOPD.DGN</i>	<i>DESIGN TOPOGRAPHY</i>
4	<i>RGEOM.DGN</i>	<i>ROADWAY GEOMETRY FILE</i>
5	<i>PPSHT01.DGN</i>	<i>REF BORDER FOR ROAD PLAN AND PROFILE SHTS.</i>
6	<i>RDWYPRO.DGN</i>	<i>BELTWAY 8 PROFILE</i>
<i>CELL LIBRARY:</i>		<i>BGE.CEL</i>
<i>PLOT CONFIG:</i>		<i>BGE.PLT</i>

### **PLOTTING INFORMATION**

CSJ NO. \_\_\_\_\_ HIGHWAY NO. \_\_\_\_\_

MEDIA LABEL \_\_\_\_\_ OF \_\_\_\_\_ ENGINEER NO. \_\_\_\_\_

#### **PLOTTING INSTRUCTIONS:**

COLOR TABLES

PEN TABLES

CELL LIBRARIES

PLAN SHEETS (DGN.FILES)

PARCEL SKETCHES (DGN FILES WITH DIFFERENT DESC)

### **EXAMPLE DOCUMENTATION**

AVAILABLE AT YOUR REQUEST

- Cell Library
- Plotting Pen Tables
- Menus
- Seed Files

**ENGINEER STANDARDS MEDIA DOCUMENTATION**

This Media contains standard MicroStation cell libraries, plotting pen tables, menus, and seed files used by the State and is provided to the Engineer for his use with this contract..

**DRAFTING STANDARDS AND GRAPHIC SEED FILES:**

The Engineer shall use Drafting Standards and Graphic Seed files provided by the State, including, but not limited to, the following:

**CELL LIBRARIES:**

<u>FILE NAME</u>	<u>DESCRIPTION</u>
e_sheet.cel	Standard Sheets for English Projects Cell Library
advplan.cel	Advanced Planning Cell Library
gdb1000.cel	District Standard Cell Library (Note: District Cell Library provided may have different file name than shown here)
schplan.cel	Schematic Planning cell Library
sign.cel	Sign Cell Library

**WORKSTATION COLOR TABLES:**

<u>FILE NAME</u>	<u>DESCRIPTION</u>
32color.ctb	16 Colors Color Table
v256color.ctb	256 Colors Color Table (Houston District Standard)
schplot.ctb	Advance Planning Color Table

**FONT LIBRARY:**

<u>FILE NAME</u>	<u>DESCRIPTION</u>
STATE.rsc	Standard Font Library

**GRAPHIC SAMPLE FILES:**

The following graphic sample files may be replaced by the State's Project Manager with similar files from the State District that the work is to be performed.

<u>FILE NAME</u>	<u>DESCRIPTION</u>
192gt01.dgn	Sample District Title Sheet
192pp06.dgn	Major Freeway Section (portion of State Highway 6)
192pp01.dgn	Non-freeway Section (portion of State Highway 6)
dist12.dgn	Reference file for 192gt01.dgn
d12ant.dgn	Reference file for 192gt01.dgn
192r2d01.dgn	Reference file for 192gt01.dgn, 192pp06.dgn, and 192pp01.dgn
192ral01.dgn	Reference file for 102gt01.dgn, ,192pp06.dgn and 192pp0`.dgn
192rg01.dgn	Reference file for 192gt01.dgn, and 192pp01.dgn

**Planimetric / DTM****File Level Menu**

Photogrammetry Feature	DTM	Microstation V8 Name	Level
<b>Control</b>			
Horizontal Control, Principal Point	no	p_control ground ctrl	1
<b>Road</b>			
Paved Road , Curb	yes	p_road paved, curb	2
Dirt Road	yes	p_road dirt	3
Guard Rails	no	p_road guard rail	4
Guard Fences	no	p_road guard fence	5
Guard Posts	no	p_road guard post	7
Concrete Barrier	no	p_road conc barrier	6
Paint Stripe Solid and Dashed	yes	p_road paint stripe	62
Bridge End	yes	p_road bridge end	9
Cattle Guard	no	p_road cattle guard	16
Overhead Sign	no	p_road overhead sign	7
General Road Feature	no	p_road general feature	7
<b>Railroad</b>			
Railroad Track RR Controls	no	p_railroad rr control	10
<b>Drainage</b>			
Concrete Dam	yes	p_drainage conc dam	27
Concrete Drain	yes	p_drainage conc drain	28
Earthen Dam	yes	p_drainage earthen dam	26
Riprap	yes	p_drainage riprap	8
Culvert	yes	p_drainage culvert	9
Inlet	yes	p_drainage inlet	9
Water	yes	p_drainage water	25
Marsh	yes	p_drainage marsh	24
<b>Structure</b>			
Building	no	p_structure building	11
Ruin	no	p_structure ruins	12
Sidewalk	no	p_structure sidewalk	13
Slab	no	p_structure slab	14
Porch, Deck	no	p_structure porch	15
Stairs, Steps	no	p_structure stairs	16
Fence, Gate, Post	no	p_structure fence	17
Retaining Wall	no	p_structure ret wall	18
Wall	no	p_structure wall	18
Cemetery	no	p_structure cemetery	23
Billboard	no	p_structure billboard	21
Sign, Sign Pole, Sign Post	no	p_structure sign	21
Antenna, Cellular Tower, Satellite Dish	no	p_structure antenna	20
Windmill	no	p_structure windmill	23



Flag Pole	no	p_structure flag pole	20
Pipes	no	p_structure pipe	23
Tank	no	p_structure tank	23
Area Under Construction	no	p_structure constr area	12
General, AC Unit, Goal Large, Small Circle	no	p_structure general	23
Unidentified Feature	no	p_structure unidentified	23
<b>Utility</b>			
Fire Hydrant	no	p_utility fire hydrant	20
Manhole	no	p_utility manhole	20
Marker, Meter, Valve	no	p_utility marker	20
Transmission Tower, transmission Line	no	p_utility trans tower	20
Pipeline	no	p_utility pipeline	22
General, Pole, Pole LP, TFP, LP			
Traffic Light, Gas Light	no	p_utility general pole	20
<b>Vegetation</b>			
Woods	no	p_veg woods	29
Tree	no	p_veg tree	29
Tree Farm	no	p_veg tree farm	30
Tree Orchard	no	p_veg tree orchard	29
Palm	no	p_veg palm	29
<b>Digital Terrain Model (DTM)</b>			
Breakline	yes	p_dtm breakline	40
General Breakline	yes	p_dtm general breakline	53
Retaining Wall Breakline	yes	p_dtm retaining wall	48
Sidewalk Breakline	yes	p_dtm sidewalk	43
Mass Points	yes	p_dtm mass points	38
Water Obscured	yes	p_dtm water obscured	45
Obscured Area	yes	p_dtm obscured area	41
Pit and Fill Area	yes	p_dtm pit or fill area	24
Stock Pile	yes	p_dtm stock pile	19

**ATTACHMENT H-SG****Historically Underutilized Business  
for State Funded Professional or Technical Services Contracts  
HUB Goal Assigned-State of Texas Subcontracting Plan Required**

- 1) **POLICY.** It is the policy of the Department to ensure that HUBs shall have an equal opportunity to participate in the performance of contracts; to create a level playing field on which HUBs can compete fairly for contracts and subcontracts; to ensure nondiscrimination on the basis of race, color, national origin, or gender in the award and administration of contracts; to help remove barriers to the participation of HUBs in department contracts; and, to assist in the development of firms that can compete successfully in the market place outside the HUB program. Consequently, the HUB requirements of the Department's HUB Program apply to this contract as follows:
- (1) The Provider agrees to insure that they shall take all necessary and reasonable steps to meet the HUB goal for this contract.
- The Provider and any subprovider(s) shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of contracts.
  - When submitting the contract for execution by the Department, the Provider must complete and furnish Exhibit H-1 which lists the commitments made to all subproviders, including certified HUB subprovider(s) that are to meet the contract goal, and Exhibit H-2 which is a commitment agreement(s) containing the original signatures of the Provider and HUB(s) that were indicated in the original submitted State of Texas HUB Subcontracting Plan (HSP) in Section 8. For Work Authorization Contracts, Exhibit H-1 is required at the time of submitting the contract for execution by the Department. Exhibit H-2 will be required to be completed and attach with each work authorization number that is submitted for execution, if the HUB will be performing work. If non-HUB subprovider is performing work, insert N/A (not applicable) on the line provided. A prime must allow a HUB maximum opportunity to perform the work by not creating unnecessary barriers or artificial requirements for the purpose of hindering a HUB's performance under the contract. Any substitutions or changes to the HSP, in addition to any changes to the original contract award, shall be subject to prior written approval by the Department. If there are any changes to the subproviders during the contract term, the Provider must furnish a Revised Exhibit H-1 showing the revised commitment of all subproviders.
  - Failure to carry out the requirements set forth above shall constitute a breach of contract and may result in a letter of reprimand; in termination of the contract by the Department; in a deduction from money due or to become due to the Provider, not as a penalty but as damages to the Department's HUB Program; or such other remedy or remedies as the Department deems appropriate.
- 2) **DEFINITIONS.**
- "Department" means the Texas Department of Transportation (TxDOT).
  - "Contract" is the agreement between the Texas Department of Transportation and a Provider.
  - "Provider" is any individual or company that provides professional or technical services.
  - "Joint Venture" means an association of two or more businesses to carry out a single business enterprise for profit which combines their property, capital, efforts, skills and knowledge.
  - "Historically Underutilized Business (HUB)" means any business so certified by the Texas Facilities Commission.
- 3) **PERCENTAGE GOAL.** The goal for Historically Underutilized Business (HUB) participation in the work to be performed under this contract is 23.7 % of the contract amount.
- 4) **PROVIDER'S RESPONSIBILITIES.** A Provider (HUB or non-HUB) must perform a minimum of 30% of the contract with its employees (as defined by the Internal Revenue Service). The contract is subject to the HSP Good Faith Effort Requirements.
- A Provider who cannot meet the contract goal, in whole or in part, should have documented any of the following and other efforts made as a "Good Faith Effort" to obtain HUB participation.
    - Whether the prime advertised in general circulation, trade association, and/or minority/women focus media concerning subcontracting opportunities.

- (2) Whether the prime provided written notice to at least three (3) qualified HUBs allowing sufficient time for HUBs to participate effectively.
- (3) Whether the prime documented reasons for rejection or met with the rejected HUB to discuss the rejection.
- (4) Whether the prime provided qualified HUBs with adequate information about bonding, insurance, the plans, the specifications, scope of work and requirements of the contract.
- (5) Whether the prime negotiated in good faith with qualified HUBs, not rejecting qualified HUBs who are also the lowest responsive bidder.
- (6) Whether the prime used the services of available minority and women community organizations, contractor's groups, local, state, and federal business assistance offices, and other organizations that provide support services to HUBs.

NOTE: The Provider must not cause or allow subproviders to bid their services.

- b. The preceding information shall be submitted directly to the Chair of the Consultant Selection Team responsible for the contract.
- c. The Provider shall make all reasonable efforts to honor commitments to HUB subproviders named in the original HSP in Section 8. Where the Provider terminates or removes a HUB subprovider named in the initial commitment, the Provider must demonstrate on a case-by-case basis to the satisfaction of the Department that the originally designated HUB was not able or willing to perform. The term "unable" includes, but is not limited to, a firm that does not have the resources and expertise to finish the work and/or a firm that substantially increases the time to complete the project.
- d. The Provider shall make all reasonable efforts to replace a HUB subprovider that is unable or unwilling to perform successfully with another HUB and must meet the HSP Good Faith Effort Requirements. Any substitution of HUBs shall be subject to prior written approval by the Department. The Department will request a statement from the firm being replaced concerning its replacement prior to approving the substitution. If there are any changes to the subproviders during the contract term, the Provider must furnish a Revised Exhibit H-1 showing the revised commitment of all subproviders.
- e. The Provider shall designate a HUB liaison officer who will administer the Provider's HUB program and who will be responsible for maintenance of records of efforts and contacts made to subcontract with HUBs.

5) **ELIGIBILITY OF HUBs.**

- a. The Texas Facilities Commission (TFC) certifies the eligibility of HUBs.
- b. The TFC maintains a directory of certified HUBs. The HUB Directory is available through the Department's Business Opportunity Programs Office and through the Internet at the TFC's Website (<http://www.tfc.state.tx.us/divisions/commissionadmin/prog/HUB>).
- c. Only HUB firms certified and identified in specific categories and classes at the time the contract is signed or at the time the commitments are submitted are eligible to be used in the information furnished by the Provider as required under Section 2.c. above.
- d. If during the course of the contract it becomes necessary to substitute another HUB firm for a firm named in the information submitted by the Provider as required by Section 2.c. above, then only certified HUBs will be considered eligible as a substituted firm. The Provider's written request for substitutions of HUB subproviders shall be accompanied by a detailed explanation, which should substantiate the need for a substitution. The Department will verify the explanation with the HUB firm being replaced before giving approval of the substitution. If there are any changes to the subproviders during the contract term, the Provider must furnish a Revised Exhibit H-1 showing the revised commitment of all subproviders.
- e. The 73rd Legislature passed Texas Civil Statutes, Article 601i, relative to contracts between governmental entities and certain disadvantaged businesses. The Statute provides for civil penalties for persons who falsely claim disadvantaged business status and for the general contractor who knowingly contracts with a person claiming to be a disadvantaged business.

6) **DETERMINATION OF HUB PARTICIPATION.**

A firm must be an eligible HUB and perform a professional or technical function relating to the project. Proof of payment, such as copies of canceled checks, properly identifying the Department's contract number or project number may be required to substantiate the payment, as deemed necessary by the Department. A HUB subprovider, with prior written approval from the Department, may subcontract 70% of a contract as long as the

HUB subprovider performs a commercially useful function. All subcontracts shall include the provisions required in the subcontract and shall be approved as to form, in writing, by the Department prior to work being performed under the subcontract. A HUB performs a commercially useful function when it is responsible for a distinct element of the work of a contract; and actually manages, supervises, and controls the materials, equipment, employees, and all other business obligations attendant to the satisfactory completion of contracted work. If the subcontractor uses an employee leasing firm for the purpose of providing salary and benefit administration, the employees must in all other respects be supervised and perform on the job as if they were employees of the subcontractor.

7) **COMPLIANCE OF PROVIDER.**

- 8) To ensure that HUB requirements of this contract are complied with, the Department will monitor the Provider's efforts to involve HUBs during the performance of this contract. This will be accomplished by a review of the monthly State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) submitted to the Business Opportunity Programs Office by the Provider indicating his/her progress in achieving the HUB contract goal, and by compliance reviews conducted by the Department. The State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) must be submitted at a minimum monthly to the Business Opportunity Programs Office, in addition to with each invoice to the appropriate agency contact.

The Provider shall receive credit toward the HUB goal based on actual payments to the HUB subproviders with the following exceptions and only if the arrangement is consistent with standard industry practice.

- (1) Payments to brokers or firms with a brokering type operation will be credited only for the amount of the commission;
- (2) Payments to a joint venture will not be credited unless all partners in the joint venture are HUBs;
- (3) Payments to a HUB subprovider who has subcontracted a portion of the work required under the subcontract will not be credited unless the HUB performs a commercially useful function;
- (4) Payments to a HUB will not be credited if the firm does not provide the goods or perform the services paid for;
- (5) Payments made to a HUB that cannot be linked by an invoice or canceled check to the contract under which credit is claimed will not be credited.

A Provider must not withhold or reduce payments to any HUB without a reason that is accepted as standard industry practice. A HUB prime or subprovider must comply with the terms of the contract or subcontract. Work products, services, and commodities must meet contract specifications whether performed by a prime or subprovider.

A Provider's failure to meet the HUB goal and failure to demonstrate to the Department's satisfaction sufficient "Good Faith Effort" on his/her part to obtain HUB participation shall constitute a breach of contract. In such a case, the Department reserves the right to issue a letter of reprimand; to deduct the amount of HUB goal not accomplished by HUBs from the money due or to become due the Provider, not as a penalty but as damages to the Department's HUB program; or such other remedy or remedies as the Department deems appropriate.

9) **RECORDS AND REPORTS.**

- a. After submission of the initial commitment (Exhibit H-1), required by Section 2.c. of this attachment, the Provider shall submit State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) at a minimum monthly, after contract work begins, on subcontracting involvement. One copy of the State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) is to be sent to the Business Opportunity Programs Office of the Department monthly. In addition, the State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) must be submitted with the Provider's invoice. All payments made to subproviders are to be reported. **These State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Reports are required monthly even during months when no payments to subproviders have been made.** The State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report will be

WAs Used

Contract No. 36-6IDP5370  
PeopleSoft Contract No. 5685

required until all work on the contract has been completed. The Department may verify the amounts being reported as paid to HUBs by requesting copies of canceled checks paid to HUBs on a random basis.

- b. Subproviders should be identified on the State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) by name, the amount of actual payment made to each during the billing period, cumulative payment amount and percentage of the total contract amount.
- c. All such records must be retained for a period of seven years following final payment, or until an investigation, audit, examination, or other review undertaken during the seven years, and shall be available at reasonable times and places for inspection by authorized representatives of the Department and other agencies.
- d. Prior to receiving final payment, the Provider shall submit a Final Report (Exhibit H-4), detailing the subprovider payments to the Business Opportunity Programs Office of the Department, and one copy to the Department with the Provider's final invoice.

12/06  
HUB.ATT

**EXHIBIT H-1****Texas Department of Transportation  
Subprovider Monitoring System  
Commitment Worksheet**Contract #: 36-6IDP5370 PS 5685 Assigned Goal: 23.7% Federally Funded      State Funded ✓Prime Provider: Cobb, Fendley & Associates, Inc. Total Contract Amount: \$2,000,000.00Prime Provider Info: DBE      HUB      Both     Vendor ID #: 17421928791 DBE/HUB Expiration Date: N/A

(First 11 Digits Only)

*If no subproviders are used on this contract, please indicate by placing "N/A" on the 1<sup>st</sup> line under Subproviders.*

<b>Subprovider(s) (List All)</b>	<b>Type of Work</b>	<b>Vendor ID # (First 11 Digits Only)</b>	<b>D=DBE H=HUB</b>	<b>Expiration Date</b>	<b>\$ Amount or % of Work *</b>
Arcadis U.S., Inc.	Traffic Engineering Studies; Highway – Rail Grade Crossing Studies; Traffic Signal Timing; Intelligent Transportation System; Signalization; ; ITS Control Systems Analysis, Design & Implementation; Highway – Rail Grade Crossing	15703732246			19.0%
Alliance-Texas Engineering Company dba Alliance Transportation Group, Inc.	Traffic Engineering Studies; Highway – Rail Grade Crossing Studies; Traffic Signal Timing; Signalization; ITS Control Systems Analysis, Design & Implementation; Highway – Rail Grade Crossing	17428514321	D H	7/23/2018	10.0%
SP Engineering, Inc.	Traffic Engineering Studies; Traffic Control Systems Analysis, Design & Implementation; Signing, Pavement Marking & Channelization; Illumination; Signalization	18003413038	D H	7/31/2018	5.0%
EPIC Transportation Group, LP	Traffic Control Systems Analysis, Design & Implementation, Illumination; Signalization	12639213961	D H	7/31/2016 3/13/2017	3.0%
Crouch Environmental Services, Inc.	Public Involvement	17604300479	D H	6/30/2018	5.0%
C J Hensch & Associates, Inc.	Traffic Engineering Studies	17605826282	D H	1/31/2017 8/29/2017	1.0%
<b>Subprovider(s) Contract or % of Work* Totals</b>					<b>43.0%</b>

\*For Work Authorization Contracts, indicate the % of work to be performed by each subprovider.

Total DBE or HUB Commitment Dollars \$                                     Total DBE or HUB Commitment Percentages of Contract 24.0%

(Commitment Dollars and Percentages are for Subproviders only)

WAs Used

Contract No. 36-6IDP5370  
PeopleSoft Contract No. 5685

## EXHIBIT H-2

### Texas Department of Transportation

### Subprovider Monitoring System Commitment Agreement

This commitment agreement is subject to the award and receipt of a signed contract from the Texas Department of Transportation (TxDOT). **NOTE: Exhibit H-2 is required to be attached to each contract that does not include work authorizations. Exhibit H-2 is required to be attached with each work authorization. Exhibit H-2 is also required to be attached to each supplemental work authorization. If DBE/HUB Subproviders are used, the form must be completed and signed. If no DBE/HUB Subproviders are used, indicate with "N/A" on this line: \_\_\_\_\_ and attach with the work authorization or supplemental work authorization.**

Contract #: \_\_\_\_\_ Assigned Goal: \_\_\_\_\_ % Prime Provider: \_\_\_\_\_

Work Authorization (WA)#: \_\_\_\_\_ WA Amount: \_\_\_\_\_ Date: \_\_\_\_\_

Supplemental Work Authorization (SWA) #: \_\_\_\_\_ to WA #: \_\_\_\_\_ SWA Amount: \_\_\_\_\_

Revised WA Amount: \_\_\_\_\_

Description of Work (List by category of work or task description. Attach additional pages, if necessary.)	Dollar Amount (For each category of work or task description shown.)
<b>Total Commitment Amount (Including all additional pages.)</b>	\$

**IMPORTANT:** The signatures of the prime and the DBE/HUB and Second Tier Subprovider, if any (both DBE and Non-DBE) and the total commitment amount must always be on the same page.

<b>Provider Name:</b> <b>Address:</b> <b>Phone # &amp; Fax #:</b> <b>Email:</b>	<b>Name:</b> _____ <div style="text-align: center;"><i>(Please Print)</i></div> <b>Title:</b> _____ <div style="text-align: center;">_____</div> <div style="display: flex; justify-content: space-between;"><b>Signature</b><b>Date</b></div>
<b>DBE/HUB Sub Provider</b> <b>Subprovider Name:</b> <b>VID Number:</b> <b>Address:</b> <b>Phone # &amp; Fax #:</b> <b>Email:</b>	<b>Name:</b> _____ <div style="text-align: center;"><i>(Please Print)</i></div> <b>Title:</b> _____ <div style="text-align: center;">_____</div> <div style="display: flex; justify-content: space-between;"><b>Signature</b><b>Date</b></div>
<b>Second Tier Sub Provider</b> <b>Subprovider Name:</b> <b>VID Number:</b> <b>Address:</b> <b>Phone # &amp; Fax #:</b> <b>Email:</b>	<b>Name:</b> _____ <div style="text-align: center;"><i>(Please Print)</i></div> <b>Title:</b> _____ <div style="text-align: center;">_____</div> <div style="display: flex; justify-content: space-between;"><b>Signature</b><b>Date</b></div>

**VID Number is the Vendor Identification Number issued by the Comptroller. If a firm does not have a VID Number, please enter the owner's Social Security or their Federal Employee Identification Number (if incorporated).**





HSP-PAR Rev. 9/05